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ORIGINAL COMMUNICATIONS.

The following communication contains information of great value to the growers of wheat. It is from a source on which the most implicit reliance may be placed; and our highly esteemed correspondent will please accept our thanks for making this work the medium of its publication. We shall take great pleasure in publishing further communications on the subject.

Most Important Agricultural Intelligence. By Henry Colman. [For the New-York Farmer, and American Gardener's Magazine.]

The grain fly, or insect, which, for a few years past, has been so destructive to wheat in many parts of the country, has this year extended his ravages, and excited, wherever he has made his appearance, very serious alarm. An eminent farmer in the State of New-York wrote to me a year since, that he must give up the cultivation of wheat, as his crops were so much injured that he hardly obtained a return equal to the seed sown. I knew another instance in the same State, where, though the straw was large and the appearance promising, yet from thirty bushels sown not more than seven were obtained. I have known other cases in which the whole field has been mowed and sold for litter; and in a recent excursion up the valley of the Connecticut, I have heard complaints every where, and seen hundreds and hundreds of acres so destroyed that the grain they would yield would hardly pay for the reaping. Besides this, the same insect has destroyed many fields of rye in the same manner as the wheat, and had been found this year in the oats; the progress of the insect has been about forty miles a year; and a distinguished gentleman in Vermont, a practical and extensive farmer, remarked that he feared they would on this account be obliged to relinquish the cultivation of small grains.

The habits of the insect have not yet been accurately observed. I myself have not yet seen the fly, but have seen the worms in the kernel after the grain has been destroyed. He is represented as being a small reddish fly, which is seen hovering over the wheat fields in immense numbers, while just in flower, and has been observed to alight upon the kernel or bud, to ascend it, and then descending in the inner side, to deposit his egg between the stalk and the kernel. I purposely avoid the use of all scientific terms, wishing to be understood by common farmers. From this egg the worm is generated, which entirely consumes the grain while in the milk, leaving nothing but the husk, in which are found several small yellow worms, about an eighth of an inch in length. As the work of destruction is now completed, any farther observation of his habits are of no importance, unless we can some way reach so as to destroy the germ of the future insect. No preparation of the seed or ground, however, has as yet been found effectual to this end.

The continuance of the fly upon the grain is thought not to exceed three or four days, and they are seen in greatest numbers just at night. Some farmers have found late sowing a partial security, as the season for the flies has passed away before the wheat was in condition for their attack. Spring wheat sown as late as the 20th and 28th of May has in a great measure escaped, while some sown as late as the 7th and 8th of June has been untouched, though in cases of such very late sowing, the farmer will be very fortunate if, in attempting to escape the fly, he does not get nipt by the frost.

I have now, however, the extraordinary happiness of announcing to the agricultural public, what there is reason to believe will prove an effectual, as it is a reasonable and feasible preventative. Should it prove effectual, the remedy will be worth millions and millions of dollars to the country. It was communicated to me on a late tour of agricultural inquiry and observation by Dr. Eliphalet Lyman, of Lancaster, N. H., an intelligent and practical farmer, whose crop of wheat usually averages from twenty-five to thirty bushels per acre. It consists in the application of fine slacked lime to the wheat just at the time of its heading out and flowering, at the rate of about a peck to the acre. It is sown broad-cast upon the wheat while the dew is on, and the field is rendered white with it. The best mode of applying it is with the hand, and for the person, who sows it, taking his proper breadth or cast, to walk backwards, so that he may not cover himself with the lime. It must be sown while the wheat is wet or the dew is on, and the philosophy of its application is very simple. The maggot of the fly is deposited between the grain and the stalk. It is, of course, an animal substance. The lime, or alkali, mixing with the dew, is carried down upon it, and neutralizes or destroys it. Dr. Lyman has now tried this preventative three successive years, and has invariably, as he assures me, saved his crops, while those of his neighbors have been destroyed.

I visited, at the same time, the field of a Mr. Bellows, in the same town, who had been advised by Dr. Lyman to make this application. The field consisted of several acres. He did it, and it has provec successful; and what is strongly confirmatory of the value of this remedy, is the fact that a field of rye belonging to Mr. Bellows, adjoining his wheat, and I think within the same enclosure, which was not limed, has been nearly destroyed by the fly.

These are certainly very important experiments, and I make no delay in presenting them to the public. Dr. Lyman has promised me a more particular account of the experiment and result, and likewise Mr. Bellows, which, as soon as received, I shall be happy to communicate. I have received an indirect and indefinite communication, that the same experiment has been successfully made in Gilmanton, N. H., but I have not yet been able to obtain either the name or the details.

Henry Colman.

Meadowbankg, Sept. 15th., 1835.

The following is a very lengthy communication—yet we need only say that it is from the pen of our excellent and worthy friend, the Rev. Mr. Colman, to insure to it an attentive perusal. The publication of *such* "Notes by the Way" insensibly induces the man of fortune and of leisure, to devote his attention to rural subjects, and thereby become a benefactor to his country.

Why is it, we often ask, that there are not *many* others like Mr. Colman, willing to lay before the public the *result* of their observations? Those who may be disposed to do so, will ever find a place in this Journal.

Notes by the Way. By Henry Colman. [For the New-York Farmer, and American Garderner's Magazine.]

The candid readers of the New-York Farmer, and we trust they will all be candid, where the sole object is agricultural improvement and the diffusion of useful information, in the absence of more interesting matter, may be gratified with some desultory notes by the way, on a recent excursion up the Connecticut valley and across the interior of the State of New-Hampshire.

In the beauty and picturesqueness of its scenery, in its universal salubrity, in the fertility of its alluvial lands, in the abundant and equal distribution of the

means of subsistence and the comforts and luxuries of life, and in the improved, intellectual, and moral character of its population, their good institutions and orderly habits, perhaps there is no more favored spot on the earth than the valley of the Connecticut, from its mouth to its source, a distance of more than three hundred miles. The traveller, in this charming region, is continually delighted with mountain and river scenery, with hills clothed with the richest verdure and meadows almost oppressed by their abundance, with a succession of beautiful and populous villages and towns, engaged in the various pursuits of agriculture and manufactures, and of extensive, well cultivated and fertile farms, illustrating in the most striking manner the saying of the wise man, that "the hand of the diligent maketh rich." The roads are fine; the accommodations in general excellent, and the traveller, who is neither selfish nor captious, who is willing to be pleased and can find a benevolent pleasure in contemplating a scene of almost unmixed rural prosperity, can no where find in a favorable season a more greatful and delightful tour; but that he may enjoy it fully, we beg leave to recommend to him to take it leisurely, and by reasonable stages by day-light and in an open carriage, and not expect to estimate it justly by getting into a stage-coach and hurrying through it by extraordinary urging and compensation to the drivers with the rapidity of an express on a mission of life or death.

My own residence is at the confluence of the Deerfield with the Connecticut, and my remarks, therefore, will relate to the country and cultivation above this point, though the best cultivated, the most populous, and the wealthiest parts of the country lie below this. Yet this must be taken only as a general remark; for there are some very fertile land, very superior farms, and very fine cultivation in various places on the whole course of the river. The Charlestown valley, the Newbury "Ox Bow," and the Lancaster valley, are as picturesque, as fertile, and, to a degree, though they are not so populous, as well cultivated as the magnificent valley of Northampton.

The crops cultivated are various, and the land is capable of any cultivation which the climate will admit. The products principally relied upon, however, are grass, Indian corn, potatoes, wheat, rye, oats, flax, hops, broom corn, and buckwheat; and the raising of stock, the produce of the dairy, and wool.

Hops.—The cultivation of hops is carried on to a limited extent. On this subject I have entered at large in a former communication in the New-York Farmer. The crops, the present year, are likely to be very small, one farmer having obtained only 500 lbs. on ground upon which, last year, he obtained 1600 lbs. This is not, however, without exceptions; one farmer in Westminster, this being the first year of gathering from his vines, will get above 600 lbs. to the acre. He calculates that the cultivation and gathering, including all expenses, will not fall short of fifty dollars per acre. The general impression is, that hops, if properly attended and manured, will do well for an indefinite time on the same land. This gentleman, and I should rely much upon his judgment, thinks that a rotation of crops is as necessary in this case as in others; and advises, therefore, that hops should not be gathered on the same land for more than three years in succession.

Broom Corn is not much cultivated above twenty miles above this on the river. The farmers who attempted it, were deterred from pursuing it either from ignorance of its proper management or from the great depression of its price three years since. With those who have cultivated it the present year it is likely to prove a most profitable crop; ninety and even one hundred dollars having been given, in some instances, for the standing crop, the purchaser taking all risk of the season and the labor of gathering upon himself. The return of seed this year, on account of the early frost, will probably be very small. The expense of cultivation and preparation for the market is more than double that of Indian corn. The yield is various, from 500 to 1000 lbs.; the product in seed is equally various; in good years it will pay a very considerable part of the expenses of cultivation. It requires, however, a long season to bring the plant to maturity; a frost will destroy the plant when young, and it will not, like the Indian corn, sprout again after being once nipt by the frost. The introduction of palm leaf brooms, which are now made in considerable quantities in some parts of Massachusetts and New-Hampshire, may in some measure affect the sale of corn brooms, but are not likely to supersede them; and there is little doubt that the crop will long remain a profitable one, subject, however, to the usual fluctuations of the market. It is an important consideration that the crop, when well secured, is not perishable, and may be kept any length of time, without deterioration, to wait a profitable sale. The value of the seed is about two thirds that of oats, and, mixed with corn or oats, it is useful for any kind of stock.

Buckwheat.—This is but little cultivated, and that only on poor, gravelly soils. It is so little attended to, that I am not able to ascertain the ordinary returns. It is deemed of great value for bees, and those who would have their "stores well filled" with honey, are advised to cultivate at least a small quantity of it, solely for their benefit. It is beneficial, likewise, as a green manure, to plough in when in flower. It furnishes a great amount of herbage; and my own experiments in this way have satisfied me of its utility.

Flax.—Of this very little is cultivated, excepting that here and there a farmer raises a small quantity for thread in his family. The extensive, and daily extending, use of cotton, seems likely to almost entirely supersede the use of flax. It is, no doubt, a considerable exhauster of the land, (if, under the new theory of Candotte, this term be any longer allowable,) but it will do to repeat it on the same soil about once in five or six years. The seed commands a ready and high price, which is likely to advance rather than decline; and it cannot be a poor crop if raised only for the seed, where from ten to fourteen bushels of seed can be obtained from an acre. The stalk or flax, in such case, must fully pay for the dressing and cultivation. My own experiments have fully satisfied me of the great advantage of the seed, given either in a boiled or raw state, for the fattening of neat cattle and sheep, but I am not able to determine its relative value. The use of oil meal for this purpose is universally approved by those well skilled in these matters. I have not found any particular advantage from its use in fattening swine; and persons, who have more extensively tried it, for this object, have complained of its giving an unpleasant taste to the meat.

Rye.—Rye is not very extensively grown, excepting occasionally as a first crop on newly cleared land, where the yield is from fifteen to twenty-five bushels to an acre. It was formerly very much cultivated, especially when the business of rum distillation was largely carried on, and farmers at the distillery could obtain a high and cash price for their product. But since these fires of destruction have been generally extinguished in these parts of the country, the demand for it has greatly lessened. It is applied by many persons with great success to the feeding of swine and cattle. Some farmers in my neighborhood, to whom I recommended the last year to make as accurate observation as they could of its effects, when applied in a mixed form to the feeding of neat cattle, speak of it in the most favorable terms. The Shakers, in Canterbury, N. H., speak very highly of it to mix with Indian meal, half and half, for their swine, and say they should prefer to give a quarter of a dollar more per bushel for rye to use in this way than to use clear Indian meal. They are, in general, in all these matters exact observers, and may be regarded in all matters of agricultural and domestic economy, as the highest authority. An intelligent farmer, in Maidshire, holds it in the same estimation for feeding swine; and Gov. Lincoln, of Worcester, Mass., as good a farmer as he has proved himself to be wise and patriotic and just as a magistrate, has informed me of his use of it for fattening swine with great success.

The dairy farmers in Cheshire, Mass., who, in the excellence and amount of their products, are perhaps surpassed by none in the country, are accustomed to give rye meal to their cows in the spring, as they believe, to great advantage. They have their cows come in, if possible, in March, and begin to make cheese by the first of April. From this time, until the pastures afford a full bite of grass, they give to each of their cows about four quarts of rye meal once a day. Indian meal, they believe, has a tendency, when given in considerable quantities, to dry

the cow, but rye meal greatly promotes the secretion of milk. Their experience is of great value; for nothing can exceed the neat and admirable management of some of the cheese dairies, which I have visited in this place. The practice of the Flemish farmers is, likewise, to give their milch cows daily a "white drank," which is rye meal mixed with water.

Many of the fields of rye, which I passed in the upper part of the valley, were black with ergot or spurred rye. The true cause of this disease in rye is not well ascertained. Some have ascribed it to a wet spring followed by a very hot summer, but that has not been the case this year. It would seem in some measure ascribable to too sudden and luxuriant a growth, when the sap is forced too violently, and bursts the vessels of the grain. The substance itself, the diseased grain, is very deleterious and poisonous, and it ought to be known is as pernicious to brute animals as to human.

Potatoes are esteemed a valuable crop. The average yield being from 250 to 400 bushels; and many farmers spoke of having obtained 500 bushels to the acre. They are not, however, raised so extensively as might be expected, and are principally used for the fattening of swine and stall feeding of beef. In the former case they are always cooked, in the latter they are given in a raw state; a yoke of oxen consuming two, three, four, and sometimes even five bushels a day. The profit of applying them in this way is doubtful, as may be easily seen upon reflection. Cattle fed in this way will not require a great amount of hay; but the calculation in such cases is not very easy, so much depends on the condition of the cattle and their value when put up, their thrift, and the state of the markets, when they are ready to be disposed of. Beef made from potatoes has a peculiar sweetness and "juiceness," but is thought that the animals fall away more in driving to market than those which fattened upon Indian meal. This, after all, may be merely conjecture. The nominal value of potatoes is from 13 to 20 cents per bushel; but they can hardly be considered a remunerating crop, where the yield does not exceed 200 bushels. They are a fine preparation for a crop of corn; and though there are different opinions on this subject, I believe they precede wheat to advantage. The most abundant crops in solid measurement are the long reds or River of Plate potatoes; and from the shape of these, and their tender and crisp nature, cattle are not likely to be choked with them; but there are other kinds of a more farinaceous nature, which, it is thought, will yield an equal amount in weight to the acre. As feed for sheep, either for fatting sheep or ewe sheep in the spring, they are highly valuable. Of their relative value compared with ruta baga, mangel wurtzel, carrots, parsnips and beets, I shall reserve an opinion until some future occasion.

Few articles of human food are capable of yielding a greater quantity, and, when well prepared, few furnish a more agreeable, useful, and universal aliment. The discovery of the Rohan potato promises most extraordinary results. It is announced in the last Quarterly Journal of Agriculture, in a letter from Prince Charles de Rohan, of Switzerland, dated 25th of April, 1834. It is a new variety, and raised from the seed. "To give you some idea," he says, "of the extraordinary produce of this potato, I give three examples at random. M. E. Martial, at Alais, gathered last autumn tubers weighing 13 lbs. 7 oz., 11 lbs. 9 oz., and 9 lbs. 13 oz. M. de Montel, a proprietor near me, asked me for tubers, when I could not give him more than a single small tuber having four eyes. He weighed it for curiosity, and found that it wanted a few grains to make half an ounce. However, this small tuber being planted, produced 48¼ lbs. The attorney of the Abbey of Auterive, canton of Fribourg, to whom I had given two tubers two years ago, and who, delighted with his first harvest, after having eaten and given them to his friends, planted the rest, and obtained last autumn six double horse loads and eight scuttlefulls."

This story, though most extraordinary, is quoted by the Edinburgh Journal from the "Le Cultivateur, Journal des Progres Agricoles," January, 1835.

Oats.—Oats are very extensively cultivated in the upper parts of the valley and on the hills. In general they succeed corn, though a different rotation is often practised. The green sward is ploughed up, and oats sowed at the rate of three bushels to the acre, without manure. The land is then manured, and planted with corn; and this is followed by wheat, when the land is "stocked down," as it is termed, with herds grass and clover. Many farmers use, likewise, a large proportion of red top, which makes an excellent hay. Others begin the rotation with wheat, and obtain two crops of Indian corn from one manuring. The average crops of oats under favorable cultivation, may be rated at from 35 to 40 bushels, though I received authentic accounts of crops amounting to 80 and 90 bushels. The promise of the crop was never better than this year, but it was at very commencement of the oat harvest when I was there, and no instance of exact measurement occurred to me. But two kinds of oats were observed by me: the common white oat, and the Siberian or Tartarian oat. One farmer spoke very highly of what he called the Smyrna oat as a heavier oat than the common, and a better yielder, but he could give me no satisfactory account of it. The Siberian or Tartarian oat, as it is denominated by Loudon, is but little cultivated, and seldom found alone. The straw is very large, and the grains are all pendant on one side of the stalk. It has, from this circumstance, acquired the designation of the horse-mane oat. It was stated to me, that a distinguished farmer in Walpole, N. H., had cultivated it exclusively several years; that he usually obtained sixty bushels to the acre, and they would weigh 36 lbs. to the bushel. This I have, however, only from report, a very doubful authority in such cases. The Shakers, at Canterbury, spoke in praise of it; but Loudon says, "it is little cultivated." It is later in coming to maturity than the other oats, but its appearance when growing is singularly beautiful and promising.

Eighty bushels of oats to an acre is spoken of, as not an extraordinary crop in Scotland; and they speak of ninety and a hundred bushels to the acre, and upwards. The quantity of seed which they sow to an acre, is from four to six bushels. The quantity with us, is, I believe, never over three bushels. It deserves particular inquiry, and exact experiments, whether we sow enough seed; and what quantity might be most profitably employed. On this matter, which is of great importance to the agricultural interest, both in respect to oats and other grains, it were greatly to be wished that experienced farmers would communicate their views, and the results of their own practice and observation to the public.

At Barnet, Vt., a place principally settled by Scotch families, and where the farming is very superior, they have excellent mills for hulling and flowering oats, and a good deal of oat flower of the finest kind is prepared for domestic use, and for the market.

In some places on the river, oats and peas are cultivated together; about two thirds of oats and one of peas are sown. This is generally after corn, and it makes an excellent provender for stall fed cattle. Of peas or barley as a single crop, I do not recollect in a journey of five hundred miles, seeing over one field.

Wheat.—Wheat is cultivated on the river and the hills to a small extent, but by no means sufficiently for home consumption. It is a mortifying fact, that a country capable of supplying very much more than its own bread stuff, should depend so much on foreign supplies; and that the Genesee brand is to be found in places where it must have paid many commissions and profits; and the freight in some cases of nearly a thousand miles.

The wheat cultivated in Vermont, and New-Hampshire, is spring wheat; and the yield varies from fifteen to thirty bushels. Both the bearded and bald kinds are raised, but the latter predominate. On newly cleared ground the yield is generally much the largest. In many places the wheat has been now, for several years, injured or destroyed by the grain fly, and very much discouraged the cultivation. Very late sowing, and planting on high and exposed situations, where the flies have probably been driven off by the wind, have appeared in some instances to furnish a security; but it is hoped and believed that a feasible and effectual preventative has been discovered, which I have the great pleasure of communicating to the agricultural public, in the present No. of the New-York Farmer.

Seed Wheat.—An amusing and instructive anecdote was related to me of a farmer in Vermont, to whom his neighbors

were accustomed to resort, for the purpose of procuring their seed wheat; as he was able to supply them with that which was very superior in its appearance, productiveness, and early maturity, which he was accustomed to call barrel wheat, and which readily commanded three dollars per bushel, when other wheat was sold for one dollar, and one dollar and a quarter. The secret was at last discovered. He used, before threshing his wheat, to select the best sheaves, and striking them over the head of an open barrel, three or four times before laying them down to be threshed, obtained in this way a superior seed. As in this way the largest and earliest ripe kernels would be shaken out, and fall into the barrel, he obtained what might be considered a selected seed, which he denominated his "barrel wheat;" and which the farmers, until they learnt how to do it for themselves, found their advantage in purchasing.

Weevil in Grain.—With a view to protect their grain from the weevil, the Shakers at Canterbury, N. H., are accustomed to sprinkle their grainaries, both floor and sides, with fine newly slacked lime; and this had proved with them an effectual preventative.

Corn.—Corn in the upper parts of Vermont, and New-Hampshire, is deemed, at least it has so proved for a few years past, a very uncertain crop. Here and there, about the first week in September, I found a field, which had passed beyond danger from the frost; but in most cases, it was scarcely out of the milk. The season, however, is remarkable for its lateness, so backward a spring as this, (1835,) being hardly remembered.

The kinds generally planted, are the twelve and eight rowed, though the latter is considered earlier, and is on that account preferred. It bears closer planting than the larger kinds, and the average yield is rated at fifty bushels to the acre. Many instances were stated to me of much larger crops.

An uncommonly intelligent and successful farmer in Charlestown, N. H., whose farm does him the highest credit, says he seldom gets less than seventy-five bushels to the acre. He plants a small eight rowed kind, at a distance of about 3 feet 4 inches, by 20 or 22 inches. A very careful neighbor of his, equally successful in his cultivation, plants the same small eight rowed corn; and has for years, as he thinks, very advantageously practised upon the plan of selecting the smallest and earliest ripe ears for seed, and those from stalks, which have more than one ear. He states, that his crops average over eighty bushels to the acre. The material objection to the twelve rowed corn with a large cob, is not that the cob *is* out of proportion to the quantity of grain upon it; but that it retains more moisture, and is therefore much more likely to become mouldy, both in the shock and the bin.

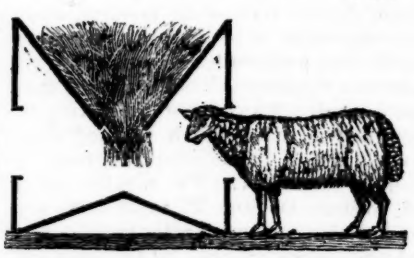
A farmer on the Passumsic river in Vermont, which empties into the Connecticut at Barnet, and on which there are many beautiful and finely cultivated farms, informed me that he one year, from a measured acre of land, obtained 117 bushels of corn; from the same land the ensuing year 109, and the third year a very large crop, the amount not remembered. This was with one manuring only, though that a copious one, of about fifty truck loads to the acre. The land was alluvial; the corn eight rowed; and planted at a distance of three feet eight inches.

In conversing with many farmers, I was happy to be confirmed in my own opinion, that the stalks and husks from an acre of corn, if well cured, are fully equal for any stock to three fourths of a ton of the best hay. Some were disposed to rate them higher. The practice of cutting up the corn at the bottom, when it is well glazed, is generally preferred.

Grass.—The crops of grass, where the mowing took place early, had fallen short of the usual quantity; but where the mowing had been delayed until very late, they were coming in abundantly. The average yield of the alluvial lands on the Connecticut, is about one and a half to two tons per acre. The farmers in Deerfield, and below on the river, usually get two crops; and their first crop is, therefore, cut very early; above this on the river they seldom cut but once. The Deerfield, Hatfield, and Hadley meadows, which are devoted to grass, are never touched by the plough, and are annually manured by the inundation of the river. Above this the meadows are cultivated, and subjected to the usual rotation. From grounds recently laid down, the yield is often three and four tons to the acre. A Mr. Milliken, in Charlestown, N. H., whose farm, together with those of some of his neighbors, deserve to be mentioned as examples of most neat and excellent husbandry, informed me that from three acres of his meadow, he one year obtained at one cutting, 9 tons 8 cwt. gross weight of well cured hay. He thinks that much of his meadow averages three tons to the acre. This farm is about four miles above Bellows Falls, and cannot fail to attract the notice of the observing traveller, from the beauty of its location, and its aspect of remarkable neatness and comfort.

Wool.—The raising of wool is fast becoming the great business of this part of the country, to which their productive meadows, and their fine pasturage on the hills, seem admirably adapted. Walpole, Westminster, Cleremont, Wethersfield, Orford, and Lyme, all river towns, have long been distinguished for their improved stock, their admirable management, their extensive flocks, and their fine wool. I had the pleasure of visiting some establishments, which, as somewhat connected [with a recent discussion] of the comparative value of the Saxony breed of sheep, it may not be uninteresting to notice.

Mr. Wm. Jennison, of Walpole, N. H., has a flock of 370 sheep and lambs. Fifty-four of these are pure Saxony ewes, of the finest wool; the others are mixed, though finer. Of his 54 pure Saxony ewes, 4 proved barren; and from the remaining fifty he raised this year 48 lambs. Their average yield of wool this year, was 2 lbs. 3 oz. His whole clip of wool was sold without selection for one dollar per pound, and his Saxony lambs always bring 15 dollars per head. The demand is greater than he can supply. He considers his Saxony sheep as good nurses, and says he has none which disown their lambs. He has his lambs come the last of March; considers clover hay the best feed for his sheep, and feeds his ewes freely with potatoes, at the rate of about one quart per day to each. He washes his sheep in pure water; first dipping them in water, and taking them out immediately, and after they have stood wet about half an hour, then taking them again into running water, and the wool is easily and thoroughly cleansed. The construction of his mangers is excellent. The barn is placed on a side hill, and the sheep are kept on the ground in the lower story, which is open to the yard, but can be closed in case of necessity; and is divided into compartments, for fifty in each. The hay is put into the mangers from above. I subjoin a section of one, and of the mangers, by which it will be seen that all waste of hay is avoided, and the head of the sheep is protected from dirt.



This manger is equally well adapted for the feeding of grain.

I visited likewise the establishment of Mr. Hodskins in Walpole, who has a flock of 800 sheep. From 200 Saxon ewes he this year raised 183 lambs; but his usual calculation, founded on long experience, is, that 225 sheep may be expected to raise 200 lambs. His yield of wool, washed and put up in the finest manner, averages 2 lbs. 4 oz.—last year 2 lbs. 7 oz., and it is understood that the whole lot was purchased at one dollar per pound. He does not permit his sheep to receive the buck until three years old, and thinks it profitable to keep them until 8 years old. He thinks that the wintering of 100 sheep will require 12 tons of hay. He found by experience, that in one case 100 large old ewes eat a ton of hay in 10 days; in another case one ton of hay in 12 days. Yearling sheep will require not more than two-thirds

as much. He salts his sheep twice a week, and allows about four quarts of salt to 100 sheep at a time. His success speaks for itself. The condition of his wool, which I had the pleasure of seeing, could not be improved.

There are many other flocks in this vicinity of considerable extent; and managed in an admirable manner. Leonard Jarvis, Esq., of Cleremont, N. H., has a very extensive flock of from 1500 to 2000 of Saxony and full-blooded Merino. This gentleman sold, the last spring, the clip of several years, amounting to 18,000 lbs. Mr. Calvin Benton, a distinguished wool dealer, has given his certificate, in which he says that, "I consider it the finest, softest, and most valuable lot of American wool that I have ever packed, without any exception. William Jarvis, Esq., of Wethersfield, Ct., on the opposite side of the river, has likewise a flock of about 800 fine wooled sheep, which I had the pleasure of seeing last spring in the finest condition possible. Both these gentlemen are able to furnish the Saxon and the Merino sheep of the best quality, and entirely unmixed. The former gentleman has been kind enough to furnish me with a detailed account of his management, which has been unfortunately mislaid; but which I hope at some future time to lay before the readers of the Farmer.*

The production of fine wool is constantly extending itself; and while the protection of the government is continued, it cannot fail, under good management, to afford profitable returns. What is to be the result when that shall cease, remains to be determined.

I beg leave with diffidence and respect to offer the foregoing "Notes by the Way" to the readers of the New-York Farmer. I commend them to their candor, and shall feel happy if they afford them either amusement or instruction. I shall be still more happy if they induce others, far more competent to observe and communicate, to give to the agricultural public the results of their experience and observation. It is the cause of a common and privileged fraternity, in which there is no room for a miserable jealousy or envy; where no one can monopolise success; and where, on every ground of humanity and patriotism, there is every motive for a most active and generous emulation. I have a few other "Notes" which I may hereafter communicate; but I will not at this time lay any farther claims upon an indulgence, already sevely taxed.

HENRY COLMAN.

Meadowbanks, 15th Sept., 1835.

The following is an account of the Rohan Potato, given in the Quarterly Journal of Agriculture for June last, and referred to in Mr. Colman's "Notes by the Way," given in this number of the New-York Farmer.

The Rohan Potato—a new variety. The following is an extract of a letter written from Geneva, of date 25th of April, 1834, by Prince Charles de Rohan to M. Jacquenot Bonnefent, Nurseryman, Annoney in the Ardeche.

"I send you, through my friend M. Romilly, the potato which I promised you; and to which my name has been given in this country. The history of this potato is not less singular than the potato itself. He who obtained it from seed four years ago, shows it; but will not give it to any person. He has refused it to King William. He has cultivated it in a little walled enclosure; he only wishes to see it in perfection, and the seed of the following year. He makes them to be taken up in his presence; keeps them under lock and key; and to be cooked for himself and cattle before his face. It is at great risk that I have been able to procure two tubers. This exclusive amateur having learnt that I had got some *cactuses*, which he wished much to have, begged me to give him some. I wished no money; but very much to have some of his wonderful potato. He gave me two of them, and made me give my word of honor, that I would never send any of them to Holland, Belgium, England, Prussia, or Germany. Happily he has not thought of Switzerland nor France, for without this omission I could not have had the pleasure of offering them to you.

"This is the mode of cultivating the potato. The earth is dug to the depth of twenty inches; make the distance between the holes four feet, and put two or three eyes or sets in each hole. Earth up frequently. The stalks, reaching six or seven feet in height, must be supported on transverse stakes. The kind being late, the tubers, which are very farinaceous, should only be taken up about Martinnas, when the stalks wither.

"To give you an idea of the extraordinary produce of this potato, I give you three examples at random. M. E. Martial, at Alais, gathered last autumn tubers weighing 13 lb. 7 oz., 11 lb. 9 oz., and 9 lb. 13 oz. M. de Montel, a proprietor near me, asked me for tubers when I could not give him more than a single tuber having four eyes. He weighed it for curiosity, and found that it wanted a few grains to make half an ounce. However, this small tuber being planted, produced 48¼ lbs. The attorney of the Abbey of Auteriæ, canton of Fribourg, to whom I had given two tubers two years ago, and who, delighted with his first harvest, after having eaten and given some to his friends, planted the rest, and obtained last autumn six double horse loads, and eight scuttlefulls. It is not the largest tuber which succeeds best as seed."—[Le Cultivateur, Journal de Proces Agricoles, Jan. 1835.]

Bennet's Broadcast Sowing Machine,—in answer to R. R. By S. P. Brittan.

[For the New-York Farmer.]

Elizabethtown, 8th May, 1835.

Dear Sir,—In answer to the inquiry of R. R. of Westchester, in relation to Bennet's Broadcast Sowing Machine, I will state that I purchased one of them about seven years since, at an agricultural store in Boston, the cost of which was *then* twenty dollars. This machine has been much used by myself and others, and I think with some little repairs, it may last twenty or thirty years longer.

As I run mostly upon grasses, (my land being peculiarly adapted to them,) I consider this machine quite indispensable. Every farmer is aware how important it is that grass seed should be sown *even*, and that it is almost impossible to sow it even by a throw from the hand, and more especially in a *windy day*; but with this machine you cannot sow it uneven, blow high or blow low, provided the barrow that carrries the trunk shall be wheeled straight forward, and in this there is no difficulty, for our usual method is to make the lands to be sown either 21 or 31½ feet wide, (the trunk being about eleven feet long,) so that we pass either twice or three times over the land, as the case may be; this allows a little lap, which makes the covering of all the ground quite sure; or if we choose not to have small lands, we put up stakes for a guide, as in the case of drawing furrows for corn, &c. The machine may be so regulated as to sow from one to fifty quarts to the acre, and although it is best suited for grass seed, yet you may sow with it any other kind you please. There is great utility in this machine; it expedites business, and makes the work sure and safe. In sowing by hand there will be many vacant places, and wherever this is the case noxious weeds will come and occupy, and trouble one much; whereas on the other hand, in sowing with this machine, if you are in season and your ground in order, you may expect an even crop. It will require a little practice and observation with this machine, in order to regulate the quantity of seed to be sown on an acre.

I would here remark that I always sow as much as twelve quarts of timothy seed to the acre, and in order to have it well rooted and matted before the winter sets in, I sow in time to get the latter August rains, or early in September,—without this, I have found, from sad experience, that our winters in this region, have more or less frozen out the roots, and thereby destroyed much of the crops,—then in the spring I put on six to eight pounds of clover seed to the acre, but I sow no grain with it, for I have generally found the crop of grass alone the most profitable.

I am, however, wandering quite away from the question, and will therefore conclude by just stating that if I had forty acres of good ground prepared for sowing with grass seed, I would cheerfully give twenty dollars for the use of one of those machines, provided I could not hire one for less, fully believing I should be the gainer thereby.

Very respectfully, your obed't serv't,

S. P. BRITTAN.

S. Fleet, Esq.

* The communication here alluded to has come to hand, and will appear in our next—the present number being made up previous to its receipt.—[Ed. N. Y. F.]

To the Editor of the New-York Farmer:

SIR,—Every new invention, or improvement in an old one, cannot but be of interest to the farmer, when they are such as to lessen the cost of producing grain, and preparing it for market.

With this view of the subject, I take the liberty of introducing to the notice of farmers, "John Marshall's new and valuable improvement in the threshing machine," as it is styled in his patent; I think, however, it is misnamed, and should rather have been called a "screen," or rake. It is intended to, and will, undoubtedly, supersede the use of the common raker, as soon as its operations shall become known to farmers. The following is a description of it, as near as may be given, without the help of a draught.

The screen is formed by taking three ropes, (of about half inch more or less,) double the length required for the length of screen, or distance the straw is intended to be carried, place them parellel to each other, about one foot six inches apart, or more, if the mouth of the machine require it, then pass through the ropes wooden or metallic rods, at such distance from each other, that the space between them shall not exceed half an inch, from end to end of the ropes, then join the ends of the ropes together, and thus an "endless revolving screen" is formed. This screen is made to pass around longitudinal pullies, placed in frames, (a suitable distance apart,) round which it revolves horizontally. To one of these longitudinal pullies, is attached a band wheel, by means of which the screen is attached to the horse power of the threshing machine, and made thereby to revolve with suitable velocity. The machine may be connected with any of the various patent threshing machines in use, and is what has long been with farmers a desideratum, viz.: a simple and cheap manner of separating the straw from the grain, perfectly clean, and conveying the straw to some place adjacent to the threshing machine. The straw with this screen, or raker, may be carried double the distance with half the expense of power, as with the old fashioned rake.

The machine, although simple, is of first rate importance to grain growing farmers. Not a kernel of grain is carried with the straw, which had been separated from the head by the threshing machine.

To all who are desirous of lessening the expense of preparing grain for market, this patent revolving screen, or raker, is confidently recommended.

With a slight alteration, the machine may be made to convey the straw on to a mow, or on to a stack or wagon, thereby saving the expense of re-handling by manual labor. UNUS.

Soil for Apple Orchards. By S. F. [For the New-York Farmer.]

The season approaches for setting out that useful and profitable fruit tree, the apple. For a tree that requires so many years to arrive at a bearing state, especially the Newtown pippin, one of the most common and valuable varieties, the most suitable soil is of very great importance. In this country our apple orchards are set out in almost all soils and situations; but generally a deep rich soil and a sheltered southern exposure are selected. Very little attention is paid to the sub-soil. Mr. Kenrick, in his truly valuable American Orchardist, says, "a rich soil, rather moist than dry, is that adapted to the apple tree, but what is termed a deep pan soil is to be preferred." He gives us no further hints in reference to the sub-soil.

Rodgers' Fruit Cultivator, a recent and commended English publication, says, "Deep rich soils, in sheltered situations, are not the most proper for the apple, though such have been most erroneously recommended by writers who ought to have known better: for it is often seen that apple trees succeed well in any kind of loam, though it be not more than one foot in depth, so as the bottom is sound and dry: the roots take an extensive horizontal range, the young wood is always of more moderate growth, and better ripened than where roots strike deep into the ground."

Do these directions clash? Or are they adapted to the respective climates of the two countries? Will Mr. K. or some other readers of the Farmer, favor the public with additional light. S. F.

August 25, 1835.

Bone Dust—Case-hardened Axles and Boxes. By S. F. [For the New-York Farmer.]

Almost the first leisure moment I have taken to myself for the last six or eight months, was to visit the button and the axle factories in the town of Greenburgh, on the banks of the Hudson. The former is extensively and successfully carried on by Mr. Scheckler. The operations are performed by water power. They afford one of the pleasing triumphs of art. The dust and the refuse pieces of bone are in sufficient quantities to afford the farmers in the neighborhood a correct estimation of their value as manure. They are very readily bought up. I have used them for pickles and ruta baga; for the latter in particular with much benefit. Mr. S. is daily in expectation from England of a mill for grinding bones. He then will add much to the agricultural riches of the town. Formerly he conducted his business in this city by horse and steam power. His expenses are now much reduced. There are hundreds of streams in the country around the city, that are sufficiently large, and yet are allowed to flow to waste. Railroads and steamboats are, however, fast developing their value.

On the same stream Mr. W. H. Saunders has a large factory for making patent case-hardened carriage, gig, cart, and railway axles and boxes. The beauty and superior workmanship of the axles and boxes are unrivalled. Their advantages are appreciated by all who have had experience in their use.

The unpleasant jarring and noise in common axles are avoided—they run much easier—less wear on the harness—less strain on the horses—require oiling only once in three or four months, and then without taking off the wheels—no possible danger from the wheels coming off—by far the most durable, and in the end the cheapest.

Mr. S. is making improvements on the axles and boxes for railroad cars.

S. F.

August 31, 1835.

HYDE PARK.—In the April number of Loudon's Magazine is a review of "A Tour through North America, together with a Comprehensive View of the Canadas and the United States, as adapted to Agricultural Emigration. By Patrick Shirreff, Farmer." The reviewer considers the work "for a farmer or gardener intendingto emigrate to America, by far the best that has hitherto been published"; and the author to exhibit a "truly philosophical turn of mind." After commending some things which he saw at Hyde Park, on the Hudson, and the residence of Dr. Hosack, he says: "The matchless beauties of the situation have not only been frequently neglected, but destroyed by stiff, formal, naked walks, and the erection of temples resembling meat-safes, without a climbing plant, which the country produces in endless variety, to hide their deformity, and harmonize them with the surrounding scene. In short, while I greatly admired the situation of Hyde Park, I do not recollect having seen a celebrated place where nature had done so much, and man so little, to render it beautiful. The embellishments at Hyde Park, contrasted with those met with every day in Britain, place American landscape gardening immeasureably behind, if it can be said to exist." Mr. Gordon and Mr. Stuart, two other British subjects, have contrasted Hyde Park not unfavorably with English ornamental gardening.

British travellers, when speaking of American landscape gardening, should remember that nine tenths of our gardeners are foreigners, and a majority of them from Great Britain—and that many of them have either had the management of some of the best gardens in the kingdom, or been employed in them. S. F.

August 27, 1835.

Six Week's Ramble in the Northern Part of the State of New-York. By S. B. [For the New-York Farmer, and American Gardener's Magazine.] [Continued from page 233.]

I arrived at Whitehall some time in the night, over a very rough road, and sufficiently fatigued to make me quite willing to suspend my curiosity to view the place till morning. From some cause, to me unknown, I had formed a pleasing idea of the village of Whitehall; and no person,

who has ever seen it, will doubt my truth when I say I never formed a more erroneous opinion. This village is, and must ever be, an unavoidable stopping-place in the great thoroughfare between New-York and Lower Canada, forming, as it does, the connecting link between steamboat and canal navigation. No one, however, is chargeable with bad taste in locating the village where it is, for there was no choice: it must stand somewhere, and it could stand no where else. The south end, or head of Lake Champlain, is for a number of miles only a deep, narrow channel of water, scarcely in any place a stone's throw across it; but at the entire south end it opens on the west into a kind of marsh of perhaps a mile or more in width, the channel keeping on the east side, with border of alluvial mud between the channel and the marsh and this bed of mud. The east bank of the lake continues south, and turning a little to the west in a high and shapeless ledge of rocks, which meeting with the west bank, which, though not so high, is not less unsightly, a kind of chasm is formed with a rough, rocky bottom; and the village stands on this bottom, thus barricaded on the east, west and south, with the mud and the marsh on the north. But the importance of this little place amply compensates for its want of beauty, and future ingenuity, aided by the wealth it must necessarily accumulate, will, without doubt, some day improve its appearance.

In the afternoon I left here in the steamboat, and stopped at Orwell, in Vermont, and crossing to the west side of the lake, walked up to the village of Ticonderoga, which is three miles from the ferry. This is a pleasantly situated little place, chiefly on the south side of the stream which forms the outlet of Lake George. But beside the pleasant scite on which it stands, Ticonderoga is calculated to awaken feelings of deep interest in the minds of the historian, the naturalist, and, most of all, the mechanic and manufacturer. No man, who has any knowledge of the history of the American revolution, can visit this place without calling to mind the various transactions which have taken place here, especially the wonderful exploit of Col. Ethan Allen, who, on the morning of the 10th of May, 1775, with only 83 Vermont militia-men, rushed into the fort at the dawn of day, and waking the commanding officer out of a sound sleep, demanded the surrender of the place in "the name of the great Jehovah and the Continental Congress," and which was accordingly surrendered, with 100 pieces of cannon and a number of prisoners. The falls at this place could not escape the notice of a traveller who had any taste for contemplating the works of nature; but to the manufacturing mechanic, who would harness the elements to perform his labor, I do not believe the earth affords another situation of equal interest.

The quantity of water which issues from the lake, I should think would be about sufficient with an ordinary fall, say about 15 feet, to propel 6 run of mill-stones; and having the entire lake for a reservoir, with only this small outlet, the discharge is nearly equal at all seasons, and, therefore, no inconvenience from surplus nor lack of water. But instead of fifteen feet, the water here falls, by accurate survey, 142 feet, or over 9 times 15; and the rock over which it falls is curiously shaped on the lower side into a succession of natural terraces or offsets, each making a distinct waterfall of about sufficient height for an overshot wheel of convenient size, and each terrace and waterfall furnished with a platform of solid rock large enough for the foundation of a manufacturing building. And these offsets are so shaped that the water may continue together through its successive operations in one body, or may be divided and turned in different directions to suit smaller purposes, as fancy or convenience may dictate, and all with so little expense as hardly to be worth recording. A permanent dam may be made and maintained, I think, at less expense than would build and maintain twenty rods of good stone fence. But these are not all the advantages: the same rock which forms the dam and the falls will afford an inexhaustible supply of good building stone; and a great part of the shores of the lake are covered with the finest of timber.

But wonderful and almost incredible as are so many favorable circumstances, meeting and seemingly conspiring together, they are all, by one simple fact in the opposite scale, as completely cancelled and nullified as two opposite and equal quantities in algebra. The property is owned by a Mr. Ellis, in England, who holds a distinguished rank under the British government, and who, as his title is secure, and he thinks that the value of the property must increase with the growth of the country, utterly refuses to grant any title, by which it can be occupied, other than momentary sufferance. Consequently, the rocks are nearly covered from top to bottom with such trap-stick concerns as can be abandoned at any time without loss. I learned these particulars from Mr. Bunnel, a respectable attorney at the place, and who is the proprietor's agent, but who, no doubt, feels the same regret as his neighbors, that a spot so delightful, and possessing such singular advantages, should be thus spell-bound, and remain useless. The stream still falls between this and the lake about 70 or 80 feet more, affording some good mill-seats, part of which are occupied and surrounded by a respectable little neighborhood, but nothing in comparison with the village and falls above.

I remained all night at Ticonderoga, or, as it is commonly called by the inhabitants, Ti, and the next day returned back and crossed the lake again to Orwell, and taking the steamboat, landed at Bridgeport, on the Vermont side, and again crossed the lake over to Crown Point, where I arrived late in the evening and spent the night. In the morning, after duly reconnoitering the place, and finding nothing which could excite any interes, in the eye or in the mind of a traveller, except its having been, like Ticonderoga, the seat of warfare, of which, however, I saw no trace remaining, I crossed the lake to the Vermont side, and again took the steamboat and landed at Essex.

The morning after arriving at Essex, as the steamboat would not again call till next evening, I had the day before me to view the place. This is a decent looking village, situated on the sloping bank of the lake, and the ground somewhat irregular; but it exhibits considerable indications of wealth and good management. It has several very handsome buildings of a kind of blue stone, which seems common to almost every place throughout this region, on the west side of the lake. But one object struck my attention very agreeably. A gentleman, whose name I do not now recollect, but who, I understand, was extensively engaged both in agriculture and commerce, had, near the centre of the village, a neat mansion-house, with all the appropriate accompaniments, indicating wealth, but not extravagance; and by the side of it, at a few yards distance, stood another building, of which I could not conjecture the use. Its appearance was not that of a common dwelling: it stood in the same enclosure as the other building; was composed of the same kind of materials, a handsome stone; was fronted by the same green lawn, richly and tastefully ornamented with shading trees, which seemed designed equally for the use of both buildings. On inquiring, I found it was an academy, which the gentleman had built, and in which he maintained a teacher of youth in the various branches of literature and science. Who could avoid thinking well of the man who sets such an example!

At evening I left Essex in the steamboat, and landed the same evening at Port Kent. Here were a few straggling houses, in one of which I found a lodging. In the morning I procured an accidental ride to Keesville, which is four miles from the landing, in a course nearly at right angles with the lake shore. Keesville is a thriving and busy little village, chiefly contained in a narrow basin on both sides of the Au Sable river, which is a large mill stream with fine falls, which afford abundance of hydraulic power, and which is used to great advantage in propelling saw mills, flouring mills, iron works, tanneries, machine making, &c. One of the saw mills is the best I have ever seen; not simply because the log is squared at one operation, and that another slits it into boards, for such are common, but because the entire establishment exhibits a neatness and ingenious workmanship, which I have never seen equalled in a saw mill. The river has high and steep banks composed of stratified stone, which quarry out in fine order for building, and which compose the principal buildings in the village. I think, from the quality of the stone and the ease of procuring them, and from the profusion and cheapness of lumber of every

description, no other place possesses superior advantages for building. The first banks are only wide enough to contain a few streets parallel with the river, beyond which are second banks, nearly parallel with the first, and so formed as to render the prospect extremely pleasant; and above these the country, for some distance, is level and interspersed with streets, and thrifty looking houses are going up in various directions. A number of teams are employed, running regularly twice a day, with conveying lumber and other things to the landing; and a charter has been granted for a railroad, which would certainly be very advantageous, but for some reason or other it has not been constructed. A more thriving and pleasant little place, and with more advantages than Keesville, is rarely to be met with; and yet, like all this section of the country, and indeed, the whole northern section of the State, seems to be little noticed by travellers or people of business. It is true, this whole slope, from the shore of lake Champlain to the rough and craggy summit which divides it from the valley of Black river, presents a broken, dreary and unpleasant appearance to the eye, making a strong contrast with the Vermont shore on the opposite side; but it affords, to a reflecting mind, on becoming acquainted with it, a striking evidence of the even hand with which the valuable gifts of nature are distributed. This rough and ragged surface conceals treasures of greater value than the richest gold mine of Peru. The iron of this region is not surpassed if equalled in quality by any other iron in the known world, and the supply is inexhaustible. From these circumstances, it requires not the spirit of prophecy to foretell that it will not always remain under the cloud of obscurity which now covers it.

Returning from Keesville to Port Kent, I took the steamboat to Plattsburg. Here is a place that no American, whose heart contains a spark of patriotism, can set foot on without recalling freshly to mind the ever memorable transactions of which this village was the theatre, on and about the 11th of September, 1814. The more he has heard and read on the subject of that eventful day, the more eager will be his curiosity to hear again the unvarnished recital in all its detail from some honest inhabitant of the place, who saw, and perhaps bore a share in the events he relates, and points out every object and every spot connected with each part of the story. It was my good fortune to meet with a very intelligent and communicative gentleman, who was not only an active participator in the scenes, but a vigilant observer of every circumstance. He pointed out to me the stations first taken by the two squadrons and the two armies, and described every intermediate movement and manœuvre till the roar of cannon ceased on the smoke-enveloped lake, and the dead stillness which reigned on the shore, while every eye was strained, in breathless anxiety, till the dense cloud slowly removing showed the star-spangled banner still waving in triumph. He showed me the lofty mansion, which overlooks the village from the west, where General Provost stationed himself with his glass to watch, like a star-gazer, the battle on the lake; and he accompanied me to the American camp-ground, where the mouldering and dilapidated barracks and other works seem to whisper to the traveller, with mournful solemnity, "Here you see the effects of war."

The village of Plattsburg is thinly spread over considerable ground, and its general appearance rather indicates decay than thriftiness. The formation, however, of the scite is not unpleasant; and should the spirit of emigration take a fancy to lead some of her recruits to the tract of unsettled country on the west and north-west of it, it might naturally be expected to flourish. At present, it exhibits no symptoms of it. The Saranac runs in a north-easterly course through the village, and a little north of its centre enters the lake. It is a rapid stream, about 150 yards wide, and I should think, from the general declivity of the country back, could be of little or no use in present or future navigation, except as a canal feeder. There are a cotton and several other manufacturing establishments in the village, and the stream has power to operate many more.

I remained here two days, and set off in the stage at 3 o'clock in the morning, with several gentlemen, who proved pleasant travelling companions. I was agreeably disappointed in the road, having prepared my mind to find it the worst I had ever travelled, but it was quite the reverse. This is one of those cases in which good emanates from evil. It is called the military road; having been opened and constructed by the government of the United States, in the late war, for the purpose of transporting cannon and other munitions of war from Lake Champlain to Lake Ontario. A good road is a great convenience, but I should hope there were few, if any, who would wish to see the roads improved at the expense of a war.

(To be continued.)

Obituary—Robert Sweet, and Mr. Douglass. By S. F. [For the New-York Farmer.]

It is grateful to our feelings, and also useful, to recall to remembrance those who have benefitted the world by their example, and the labors of their pen. Among this class are the two departed botanists, who are the subjects of the present remarks.

Robert Sweet, F. L. S., was born at Cockington, Devonshire, England, and died on the 20th of January, 1835. At the age of 16 years he was put with his half-brother, James Sweet, with whom he remained nine years, to learn the art of gardening. In 1810, he entered as partner into the Stockwell Nursery, which soon became famed for rare exotic plants. In 1812 he was elected a Fellow of the Linnean Society. In 1815 he entered as foreman to Messrs. Whitley, Brames, and Milne, nurserymen, Fulham; and remained with them until 1819, when he entered into the service of Messrs. Colvills, with whom he remained until 1826. Mr. Sweet was of modest and retired manners; he was industrious, and enthusiastic in his profession. Besides the numerous productions of his pen in periodicals, the following list of his works fully substantiate his claim, says a correspondent of Loudon's Magazine, to celebrity and usefulness.

Hortus Suburbanus Londinensis, 1 vol., 8 vo., published in 1818.

Geraniaceæ, in numbers, 5 vols., continued until 1826.

The British Flower Garden, in numbers, 3 vols., 1822 to 1826.

Botanical Cultivator, 5 editions, from 1825 to 1831.

Cistineæ, in numbers, from 1825 to 1830.

British Warblers, in 1826.

Hortus Britanicus, part 1 in 1826, and part 2 in 1827. Second edition in 1830.

Florist's Guide, in numbers, from 1827 to 1831.

Flora Australasica, in monthly numbers, from 1827 to 1828.

British Flower Garden, 2d series, from 1829 to 1831—still continued by David Don, Esq.

The Botany of Great Britain, 1st number in 1831. At this period he was taken with a brain fever, from which he but partially recovered. An aberration of mind, which continued until death, was brought on by entering too ardently into his favorite study.

MR. DOUGLASS.—This intelligent and enterprising botanist and traveller endeared himself to many in the United States. To them in particular, his death will be very greatly regretted—and to all the manner of it is affecting and painful.

Mr. Douglass was born in 1799, at Seone, near Perth. He served his apprenticeship in the gardens of the Earl of Mansfield. At the Botanic Garden of Glasgow, his fondness for plants attracted the notice of Dr. Hooker, the Professor of Botany, whom he accompanied through the Western Highlands, and assisted in collecting materials for the Flora Scotica. Dr. H. recommended him to Joseph Sabine, Esq., late Secretary of the London Horticultural Society, as a botanical collector. In 1823 he was sent to the United States, from whence he greatly enriched the Society's collection of fruit trees, and added to it many fine plants. In 1824 he started to explore the botanical riches of the west coast of North America. The vessel touched at Rio Janeiro, and thus afforded him an opportunity to collect rare orchideous plants and bulbs; among the latter of which was the new species Gesneria, named, by Mr. Sabine, G. Douglasii. On the celebrated Island of Juan Fernandez, which he described as an enchanting spot, very fertile and delightfully wooded, he sowed a large collection of garden seeds. On the 7th of April, 1825, he arrived at Fort Van Couver, on the Columbia river. From this extensive field of botanical riches he

sent to the Society large collections of seeds, and dried specimens beautifully preserved. Of the several species of pine which he discovered, one of the Pinus Lambertiana measured 215 in length, and 57 feet in circumference, 3 feet from the ground. The cones were 16 inches long and 11 in circumference. The resin and the seeds, which are sweet and pleasant, are eaten by the Indians. In the spring of 1827, Mr. Douglass traversed the country over the Rocky Mountains to Hudson's Bay, where he met Capt. Franklin, Dr. Richardson, and Capt. Back, returning from their Arctic expedition. With them he returned to England, carrying a variety of seeds and specimens. Soon after arriving in London, he was elected a Fellow of the Linnean, Geological, and Zoological Societies; to each of which he contributed valuable papers, since published in their Transactions. His travels have not yet been given to the public, although Mr. Murray, the great London publisher, offered a handsome price for the copy. In 1829 he again started for the Columbia. After a long absence, and after he had made valuable discoveries, and when he was daily expected home by his friends, news arrives of his painful death. In making a botanical excursion on one of the Sandwich Islands, he fell into a pit dug by the natives for catching wild bulls. In the pit was a bull that gored him to death.

The young gardener, and likewise the youthful farmer, will find much in the successful career of these two botanists, to encourage them in industry in their business, and in mental culture.

S. F.

August 31, 1835.

NEW-YORK FARMER.

OCTOBER 1, 1835.

Saxony, Merino, South Downs, &c.—It will doubtless be recollected that we published a short time since a communication signed *H. D. Grove*, by way of reply to a communication previously published in the Cultivator, signed R, by which Mr. G. considered that his sheep—the *Saxon*, said by good judges to be a superior specimen of that breed—would be injured in the estimation of the public. The communication was published by us without having read the one to which it was a reply—the number of the Cultivator, which contained it, not being at hand—or, as it is our aim to establish *truth*, we should most likely have published the *cause* and the *reply* at the same time, that those interested might have the whole matter before them as it now stands. We shall, however, endeavor to obtain the "Cultivator" in which the communication of R was published, and insert it in our next, together with another from the same writer, in reply to Mr. Grove, which, although it bears date *Sept. 17th*, did not reach us until the whole space of the present number was occupied. In the mean time, however, we give the following explanation from Mr. Blydenburgh, a gentleman of high respectability, residing at Albany—through whom, as co-laborer with us in the cause to which this work is devoted—we received the communication of Mr. Grove, which will, we trust, remove all unpleasant feeling and misapprehension between the gentlemen, who have, we are sure, been desirous to introduce a superior animal for the benefit of this agricultural community; and that, in recommending their own flock, with which they were *particularly* acquainted, they have *not designed* to depreciate the flock of the *other*, of which neither probably had any personal knowledge.

With these remarks, and one other, that as "our object is to *establish truth*," and not to permit personalities through the Farmer, we will close the subject for the present, by observing to the gentlemen interested, that if they will *furnish us with a pair from each of their flocks*, we will endeavor so to keep them as to be able to give an opinion from experience as to their relative merits. They need not be at the trouble and expense of wintering them, as we will have a suitable place prepared immediately, and pay the freight, into the bargain, if they will send them before the close of the navigation.

It is very unpleasant to me, as it is probably to most people, to get involved in the misunderstandings of others, having at least enough of my own to attend to. I have been, however, inadvertantly drawn into one of a pretty serious nature; but not so serious or so deep but that I trust I can, not only draw myself fairly out, but also illustrate the truth of the old adage, that "a mystery explained is a mystery destroyed," and that the same applies with equal truth to misunderstandings.

I was applied to, about the beginning of July, by Mr. H. D. Grove, requesting me, as assistant editor of the New-York Farmer, to insert therein, a reply to an article in the Cultivator of May preceding, with the signature of R, which he thought was calculated to do him serious and unmerited injury. I had no knowledge who was the author of the article in question, but being acquainted with Mr. Grove, and also with the merits of his valuable flock, I fully concurred with him in opinion that the article was calculato do him serious injury, and that he was entitled to an appeal to the public, and I think so still.

But I have now been presented, by Mr. Bement, of this city, with an extract of a letter from the gentleman who wrote the article signed R, which reads thus:

"I will thank you to express my surprise to Mr. Blydenburgh, who, I believe, is co-editor of the New-York Farmer, that he did not publish my article entire from the Cultivator, that his readers might at least see for themselves, the article which has drawn out so much animadversion, and from their personality towards Mr. Grove and the cruel murder of the Saxons. R. has some right to be judged by his own writings, and not by extracts and comments, professing to bear upon his statements. For I should be puzzled myself to know what Mr. Grove alludes to when he talks of camelion-like properties of the South Downs, and their feeding on minerals. Either R., or Grove, has written great stuff and nonsense. So I trust the New-York Farmer will give us both sides."

This then I shall endeavor to do briefly, both in compliance with the reasonable request of Mr. R, whom I have not the pleasure of knowing, and to remove any just cause of unpleasant feelings between him and Mr. Grove, whom I do know to be a very worthy man; and no less at the same time to clear myself from any reasonable cause of blame from either side.

I have learned from good authority, that there have been impositions on the public by the introduction and sale of pretended Saxony sheep, which either never saw Saxony, or if they did, were just such sheep as R. describes; and they could not be described as being worse, (for there are good and bad sheep in Saxony,) and which the public ought to be duly cautioned against. But there is a choice breed of sheep in Saxony, called the Electoral breed, which stand very high in the estimation of judges who know them. From this breed, Mr. Grove, who is himself a Saxon, and brought up among them, selected his flock, and its reputation stands identified with his own.

I have now good reason to believe that Mr. R. knew nothing of Mr. Grove or his flock, but thought he was giving the public a needful caution against a base imposition. On the other hand, Mr. Grove was no less ignorant of the impositions to which Mr. R. alluded; and of course his feelings were severely wounded; just as when a man should aim to shoot a villain who ought to die, and the ball should go beyond and wound an innocent man who was concealed from his view. I am confident, therefore, that had Mr. Grove been actuated by the same view of the subject that induced Mr. R. to write, he would have written in the same manner; and I am just *as confident* that had Mr. R. known Mr. Grove, and the character of his flock, he would not have written any thing to its disparagement, which he certainly did.

And to conclude, I am no less confident that, had either of the gentlemen been in my situation, he would have acted as I did, in publishing the defence of his friend when he considered his rights invaded. The reputation of both the parties, where they are known, would preclude the belief that either could mean any harm to the other; and should they meet, I have not the smallest doubt but they would be instantly reconciled.

S. Blydenburgh.

Dr. Perrine, Tropical Plants, &c.—We received, late in July, two letters from this gentleman, one dated 19th, and the other

23d of June, stating that he was then on the eve of his departure from Campeche, on his return to the United States. From the tenor of his letters, we apprehended some difficulty and danger in his leaving the Mexican territory; in consequence of the course pursued by him as U. S. Consul; in relation to some proceedings of the Mexican authorities, as will be seen from the following letters. We are gratified, however, to be able to say, that as late as 23d of August, nothing serious had occurred, except sickness, from which he was recovering, as will be seen by his *last* letter, of that date.

We shall be gratified to meet him on his return, and hope to be able to furnish our readers with much of interest from his pen.

To D. K. Minor, Esq., Proprietor and Publisher of the New-York Farmer, New-York.

Consulate U. S. A., Campeche, 19th June, 1835.

Dear Sir,—Your letter of the 24th of March reached me on the 10th ult., and Capt. Naghel, of the St. Helena, having touched at this port on his return from Laguira, I send with him this short reply. I had hoped to send hives of stingless bees, bags and boxes of shells, plants and seeds, and specimens of other products of this peninsula, but the captain informs me that even his cabin is so encumbered with freight that he cannot carry even a single hive of stingless bees. * * * * I thank you for the package of Farmers, &c., and shall be pleased to comply with your request of correspondence. You likely perceived, shortly after the date of your letter, the news of my removal from office; and, although my successor has not arrived, I shall proceed to New-Orleans in a few days to travel in the United States for the benefit of my health. You may have seen also the general Protest made on my office on the 26th ult., and published in the Commercial Bulletin of New-Orleans on the 6th inst., and you may well believe that my life will be endangered as soon as it is read in this city. Should I fall by violence, I shall be a double martyr for my country, and possibly my death may be more effective than my life to rouse public attention to the defence of our countrymen in Mexican ports, and to the acclimation of Mexican plants in our own territory. Should I, however, escape to New-Orleans, I will continue to dedicate a portion of my time, even while travelling, to communication for your Farmer.

Very respectfully, your ob't serv't,
H. Perrine.

P. S. Any letters directed to me, under cover to my brother, John A. Perrine, P. M., Princeton, New-Jersey, will reach me wherever I may be during the ensuing 4 to 6 months.

Campeche, 23d June, 1835.

Dear Sir,—Captain Tillyou, of the schr. Sabine, having just called for his register to get under weigh for New-York, he very kindly offers to take with him a bag of shells for you, to be divided among our mutual friends, Mr. A. Walsh, Madame Parmentier, Dr. Dekay, New-York Lyceum, &c. As I anticipated in my last, my life is so threatened that I am obliged to make my office my prison, and as the translation of the Protest is to be published this evening, I am so uncertain of safety even here that I bid you a conditional farewell.

Very respectfully, your ob't ser'vt,
H. Perrine.

Consulate U. S. A., Campeche, 23d August, 1835.

Dear Sir,—Having written, concerning tropical plants, many letters to the Departments of State, of the Treasury and of the Navy, which, it appears, have never been published, I now, on the eve of my removal to the United States, shall endeavor to employ my short intervals of convalescence in copying some of said communications for publication in your agricultural periodical. I begin by sending you copies of my two letters to the Secretary of State, dated the 1st and 20th of February, 1834. It is now nearly 8 years since the Treasury Circular of the 6th of September, 1827, requested me to aid the introduction of useful exotics, and the commanders of our naval vessels to aid the Consuls addressed. A simple change in the usual direction of a single naval vessel employed in the Mexican sea during these 8 years would have sufficed to transport all the important living plants of Mexico to Florida, but it has not been done!! God knows I have done my duty—but hitherto all in vain!!

Your obedient servant,
H. Perrine.

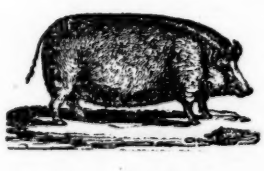
The letters here referred to, occupying 6 pages closely written, and containing much interesting information, will be published in our next number. They came so late to hand that we could not make room for them in this.

There is no species of stock of greater importance to the agricultural interest than the hog. His flesh is the most important item in animal food; he is far more prolific than any other large domestic animal; he arrives at maturity in less time than any other, except the sheep; with half the expense, in proportion to his value; and is much less liable to disease, indeed he can scarcely be considered liable at all. And if we cannot ride him as we do the horse, milk him like the cow, or wear his clothing as we do that of the sheep, still every part of him is valuable; and the short period of his life returns us the pay for his keeping at shorter credit than any other large domestic animal. And yet there is no other animal so completely neglected. In many parts of the country, a stranger to our customs would suppose, from the treatment they receive, that they were wild animals, and that the people were at considerable expense to maintain dogs, not merely to guard against them, but to worry and destroy them. To any person of a cultivated mind, and who knows the value of the swine, it would be difficult to tell which feeling would be strongest, disgust to see the lean, raw-boned, slab-sided, and long-legged specimens, with long lop ears, which infest our streets, seeking something to keep them from starving; or abhorrence of the cruelty they suffer, in having their ears torn from their heads, by dogs trained to the business; and from whose teeth they are scarcely ever a moment secure.

I cannot help thinking the man, who sets the example of reforming this horrid neglect and ill treatment of so valuable an animal, not only by improving all its improveable points, and thereby greatly enhancing its value, but by so doing, rescuing the poor suffering animal from a state of incessant torment during the short period it is permitted to live, deserves at least the thanks of every person, who loves profit and good eating, or who hates cruelty.

Having been long and deeply impressed with such a view of the subject, it has given me extreme pleasure to examine Mr. Bement's pigs, referred to in the following communication, as I think he has arrived at, or very near, the *ne plus ultra* of improvement. Their form is improved in every point. They are small eaters, their growth is rapid, and their appearance shows that their pork must be delicious. I am confident no agriculturist, who has any pretensions to common sense, could see them without being anxious to obtain the breed.

S. Blydenburgh.



[From the Cultivator.]

Improved China Hogs.—Mr. Buel, Sir: Having had frequent applications, by letter, for a description of my *improved* breed of China hogs, I know of no better method of conveying a correct idea, unless by personal inspection, than by a likeness, which I have procured, and accompanies this.

The drawing was taken from a young sow, nine months old, when in high condition.

This superior breed of swine, as I have observed in a former communication, was first introduced here by the late Christopher Dunn, Esq. Some ten or twelve years since, when passing through Princeton or New-Brunswick, N. J., in the stage, his sagacious eye was attracted by a beautiful sow, with her litter of pigs, running in the street. Delighted with their appearance, he was determined to possess some of them if possible. He accordingly applied to the driver of the stage to procure a pair of them for him. As an inducement, and to insure success, he offered him the liberal price of twenty dollars, for a male and female, although only eight weeks old, on their delivery to a certain house in New-York. They were of course procured and delivered, and from these two have sprung my "*Improved China Hogs.*"

Their color is various, some white, black and white spotted, and others blue and white. They are longer in body than the pure China breed. Upright or mouse-

eared—small head and legs—broad on the back, round bodied, and hams well let down. Skin thin—flesh delicate and fine flavored.

They are easy keepers, and of course small consumers, quiet and peaceable in disposition, seldom roaming or committing depradations. Keep in good condition on grass only.

They are not remarkable for size, seldom attaining more than 200 to 250 pounds, although instances have occurred where they have been made to reach 350! Therefore, they cannot, in their pure state, be called the "farmer's hog," but their great value is in crossing with the common hog of the country. A very good hog may be obtained by a cross with your *land sharks*,—your long legged, long nosed, big-boned, thin backed, slab-sided, hungry, ravenous, roaming tormentors, that will run squeaking about the yard with an ear of corn in their mouths.

To give you some idea in what estimation they are held by persons who have procured them of me, I have taken the liberty of making the following extracts from some of their letters.

"My Chinas, the true *Bement* breed, exceed all praise; you never saw their equals. I have a young boar in the pen, nine months old, that I will show against the United States, out of the boar and sow I had of you, both of which I still keep. Nothing can compare with them in this country, and I honestly assure you, I never saw their equals any where, for all needful qualities in the hog."

"Dear sir—I have the satisfaction of saying to you, that I got my little Berkshire and China home in good order, and doing finely, and are much admired by every person who sees them. Should I meet with success in rearing from this pair, shall not be able to furnish any thing like the quantity spoken for."

In another letter a valuable correspondent says—"The hogs I had of you have done admirably, and I am getting a fine stock of them; but on the whole, I like the full bred improved China better than the cross, and I am getting back into the pure blood. The young sows, of which I have three from the white (Hosack) boar you had, have had pigs from the old boar, but they are not true enough in blood, appearance, and shape, to suit me; whereas the mother, who is the true China, brings the pigs from the old boar, both in color, shape, size and every thing, as if they were cast in the same mould,—and that is what I like,—uniformity of appearance, even in hogs, and this boar, let me tell you, has the admiration of all who have seen him, as the best and most perfect *hog* in the country. These hogs, 'tis true, are not large, they are indeed rather small; but they are the easiest kept of any according to their size, that I ever saw, and so far as I have yet seen, I prefer them, even to the Bedfords, or any I know. The Bedfords are good, but they are too heavy headed, long legged, and great eaters, to suit me altogether. The quiet, peaceable dispositions of the Chinas, like that of the short horn cattle, is a great item, I assure you, in a farmer's account."

I might fill a page with similar extracts, but I think it unnecessary, for I shall not be able to supply all my orders until next spring.

In the next No. I propose to furnish you with a portrait of one of the Berkshire breed, of which I am now in possession, imported by S. Hawes, in 1832.

C. N. Bement.

Albany, Sept. 1, 1835.

Dahlias.—We recommend to all lovers of flowers, to visit the unequalled collection of *Dahlias*, from the gardens of Buel & Wilson, of Albany—now at *A. Smith's*, florist and seedsman, 388 Broadway.

There are, we suppose, some one hundred and fifty different sorts, varying in shade of color from pure white, through pale and bright orange, red, and scarlet, up to the most gorgeous purple. They are arranged with great taste, in a box, filled with moss and wet sand we believe, in which the flowers are embedded, and present a most beautiful *coup d'œil* indeed.

These are specimens, we understand, of flowers, the bulbs of which may be obtained at Buel & Wilson's.

[For the New-York Farmer.]

D. K. Minor, — Respectful Friend: An important error is made in copying from the "Cultivator," the quantity of whole oats fed at the public yard, as appears in the "American" of 26 ult., which has just come to my hands; 24 bushels, instead of 34, it should read.

My letter to Judge Buel was not intended for publication, much less did I expect to see it republished; and as the statement of quantities is that of another, I am the more desirous it should be correct. Please make it so by an erratum.

Respectfully thy Friend,
Rob. White, Jr.

Shrewsberry, 9 month, 1, '35.

[From the Cultivator.]

The Albany Fair, for the exhibition and sale of farm stock and farm implements, products of the dairy, of the farm generally, and of the garden,—new and useful inventions, manufactured fabrics, and products of the mechanics and artizans' shops, will be held on Tuesday and Wednesday, the 13th and 14th days of October next.

Moderate premiums will be awarded on such articles exhibited as shall be deemed to be highly meritorious. The association of brewers have voted to award three *silver cups* to the growers of the three best samples of hops which shall be exhibited. The exhibition will consequently be particularly interesting to the hop grower, and the opportunity to sell highly advantageous.

As the fair precedes that of the Institute at New York but a day or two, the latter being on the 16th, 17th and 19th, persons in the northern and western parts of the State may exhibit their articles at both without inconvenience.

☞Editors of newspapers will confer a public service by inserting this notice.

Cattle Show and Agricultural Fair.—We publish at length, and with much pleasure, the following notice, list of premiums, and regulations of the *Massachusetts Agricultural Society*, which is to be held at *Brighton* on the 14th of the present month. A more liberal list of premiums we have never seen offered in this country—it evinces a degree of intelligence and a proper appreciation of the great benefits which must result from a judicious management of such societies—and it truly shows the character and intelligence, and liberality of the inhabitants of old Massachusetts. We shall take measures to obtain, and furnish our readers with, early information in relation to the exhibition.

[From the New-England Farmer.]

Cattle Show—Exhibition of Manufactures, Ploughing Match, and Public Sale of Animals and Manufactures, at Brighton, Mass., on Wednesday, Oct. 14, 1835; to commence at 9 o'clock, A. M.

The Trustees of the Massachusetts Society for the promotion of Agriculture, encouraged by the patronage of the Legislature of this State, intend to offer in premiums, not only the sum granted by the Government for that purpose, but also the whole amount of the income of their own funds. They therefore announce to the public their intention to have a Cattle Show and Exhibition of Manufactures, &c., at Brighton, on Wednesday, Oct. 14, 1835. The whole business to be transacted in one day. The following premiums are offered:

FOR STOCK.

For the best Bull, above one year old,	$20 00
For the next best, do.	10 00
For the best Bull Calf, from five to twelve months old,	10 00
For the next best, do. do.	5 00
For the best Cow, not less than 3 years old,	25 00
For the next best, do. do.	15 00
For the next best Cow,	10 00
For the best Heifer, not exceeding 3 years old, whether she has had a calf or not,	15 00
For the next best, do. do.	12 00
For the next best, do. do.	8 00

The Bulls, Cows, and Heifers, for which premiums are awarded, to be *kept at least one year thereafter within the State.* The owner of each Bull, Bull Calf, Cow and Heifers offered for premiums, must produce an affidavit of the origin and character of the animal, and of the quantity and quality of the milk yielded by the cows, together with the manner in which they are fed and kept.

For the best Ox, fitted for slaughter, regard to be had to, and a particular statement to be given of, the mode and expense of fatting,	25 00
For the next best, do. do.	20 00
For the next best, do. do.	10 00
For the best pair of Working Oxen,	25 00
For the next best do.	20 00
For the next best do.	15 00
For the next best do.	12 00
For the next best do.	8 00

(*No oxen to be admitted to trial as working oxen, under four years old.*)

For the best Dishley Ram,	20 00
For the best do. Ewe,	20 00
For the best South Down Ram,	20 00
For the best do. Ewe,	20 00

The above premiums will be awarded on Sheep either imported or raised in the State; but the persons receiving the premiums are to enter into obligation to keep the same within the State for breeding.

For the best Boar, not exceeding two years old,	10 00
For the next best, do. do.	8 00
For the best Sow,	10 00
For the next best,	8 00

To be kept one year thereafter for breeding, by the persons receiving the premiums.

For the best Pigs, not less than two in number, nor less than 4 months old, nor more than eight,	10 00
For the next best, do. do.	5 00

None of the above animals, except Sheep, as above specified, will be entitled to premiums, unless they are *wholly* bred in the State of Massachusetts.

Any of the above Stock, when raised and

still owned at the time of the exhibition by the person who raised them, will entitle the claimant to an allowance of ten per cent. in addition.

No animal, for which to any owner one premium shall have been awarded, shall be considered a subject for any future premium of the Society, except it be for an entirely distinct premium, and for qualities different from those for which the former premium was awarded.

BUTTER AND CHEESE.

For the best Butter, not less than 50 lbs. $20 00
For the next best, do. 15 00
For the best Cheese, not less than one year old, and not less in quantity than a hundred pounds, 20 00
For the next best, do. 15 00
For the best Cheese, less than one year old, and not less in quantity than a hundred pounds, 10 00
For the greatest quantity of Butter and Cheese made between the 15th of May and the 1st of October, from and not less than four Cows, the quantity of Butter and Cheese, and the number of Cows, to be taken into consideration, and specimens to be exhibited at the Show, of not less than twenty pounds of each, and the mode of feeding, if any thing besides pasture is used, 20 00

Besides the above premiums for Butter and Cheese, the Trustees will award the following in the month of December.

For the best lot in tubs, pots, or firkins, not less than 300 pounds, 50 00
For the next best, not less than 300 pounds, 25 00
For the best, less than 300 pounds, and not less than 100 pounds, 20 00
For the best lot of Cheese, not less than one year old, and not less in quantity than 300 pounds, 25 00
For the best lot of Cheese, less than one year old, and not less in quantity than 300 pounds, 20 00

The claimant for the several premiums on Butter to be exhibited in the months of October and December next, must state in writing the following particulars, viz. the number of cows kept on his farm; his mode of keeping; the treatment of the milk and cream before churning; the mode of churning, winter and summer; the measures adopted to express the butter milk; the quantity and sort of salt employed; whether saltpetre, or any other substances have been used in the process; the best time for churning, and keeping Butter in hot weather, and the best mode of preserving it, in and through the summer and winter, and in what vessels.

The claimants for the several premiums on Cheese, must state the mode of making the same, and the following particulars, viz. the number of cows kept; whether the Cheese is made from the proceeds of one, two, or more milkings; whether any addition is made of cream; the quantity and sort of salt used, and the quantity of rennet; the mode of pressure, and the treatment of the Cheese afterwards.

Farmers in the several States are invited to compete for these premiums, at the exhibition in December.

Claims for the premiums on Butter and Cheese last above mentioned, must be made in writing, addressed to Benjamin Guild, Esq. Boston, post paid, on or before the first of December next; and the parcels deposited before Tuesday, the 2nd, at a place to be designated hereafter by the Trustees, on which day, at 10 o'clock, before noon, the Committee will proceed to examine the lots offered for premium, and none will be admitted after that hour.

The premiums will be awarded at the same place on Wednesday the 3d.

Each lot must be numbered but not marked, and any public or known mark must be completely concealed, nor must the competitors be present; in default of either of these requisitions, the claimant will not be entitled to premium.

It is particularly recommended to the competitors, that the Butter be put up in the nicest manner.

And to take notice, that there will be a public auction after the examination by the Committee, and those who desire to sell will have an opportunity without any charge for auctioneer's fees, but the government duty must be paid by the owners of the butter and cheese. And after the premium has been awarded, all the articles submitted must be taken care of by their respective owners, the Committee having no further control or responsibility in regard to them. The Committee will be at liberty to withold from the auction sale any parcels either of butter or cheese, which they may have reason to suppose, from the ordinary quality of the same, or other circumstances, may have been sent merely for sale.

VEGETABLE AND GRAIN CROPS.

For the greatest quantity of Carrots on half an acre, not less than three hundred bushels, $15 00
For the greatest quantity of Potatoes on an acre, not less than five hundred bushels, 20 00
For the greatest quantity of Mangel Wurzel, or Scarcity root on an acre, not less than 600 bushels, 20 00
For the greatest quantity of Parsnips on half an acre, not less than 200 bushels, 10 00
For the greatest quantity of Ruta Baga on an acre, not less than six hundred bushels, 20 00
For the greatest quantity of common Turnips on an acre, not less than six hundred bushels, 20 00
For the greatest quantity of Onions on half an acre, not less than three hundred bushels, 15 00
For the greatest quantity of Cabbages on an acre, not less than twenty-five tons weight, free from earth when weighed, 20 00
For the greatest quantity of vegetables, grain, peas and beans excepted, for home consumption, and not for sale, raised for the keeping of stock, regard being had to the size of the farm in proportion to the crop, and the number of the stock kept; and also to the respective value of the vegetables as food, and the expense of raising the same, 20 00
For the greatest quantity of Indian Corn on an acre, not less than 80 bushels, 20 00
For the next greatest quantity of Indian Corn on an acre, not less than 80 bushels, 15 00
For the greatest quantity of Winter Wheat on an acre, not less than 30 bushels, 20 00
For the greatest quantity of Barley on an acre, not less than 45 bushels, 20 00
For the greatest quantity of Rye on an acre, not less than 30 bushels, 20 00
For the greatest quantity of Oats, not less than 50 bushels, 20 00
For the greatest quantity of Millet on an acre, cut and cured for hay, not less than three tons, the claimant giving evidence of the time for sowing, the quantity of seed sown, and the quantity of hay produced, 20 00
For the greatest quantity of Mustard Seed, not less than 15 bushels, 20 00
For the greatest quantity of dressed Flax, not less than 500 lbs. from an acre, 20 00
For the greatest quantity and best quality of Hemp on an acre, 40 00

It is to be understood, that the quantity of land specified above is, in each case, to be in one piece. And the claimant of any of the above premiums shall, with one other person, make oath to the following particulars, before some Justice of the Peace, and with a certificate of the same, shall obtain a certificate of the measurement of the land by some surveyor. The particulars are—

1. The condition of the land in the Spring of 1835.

2. The product and general state of cultivation, and quality of manure used upon it in the preceding year.

3. The quantity of manure the present season.

4. The quantity of seed used, and if Potatoes, the sort.

5. The time of sowing, weeding, and harvesting the crop, and the amount of the product ascertained by actual measurement, after the whole produce for which a premium is claimed, is harvested, and the entire expense of cultivation.

9. Of Indian Corn, the entire crop of the acre to be offered for premium, is to be shelled and measured in the presence of the claimant, who is to make oath to the truth of the statement made by the person or persons, who did harvest, shell and measure it; and to be measured between the 15th of November, 1835, and the 1st of January, 1836.

7. At least forty bushels of the vegetables, for which a premium is claimed, except potatoes, onions, and common turnips, are to be weighed free from dirt, and fifty-six pounds will be considered a bushel.

THE BEST CULTIVATED FARMS.

For the best cultivated Farm, $150 00
For the next best cultivated Farm, 100 00

The farm to consist of not less than 70 acres, exclusive of wood land. The owner or tenant, to entitle himself to either of the premiums, must state in writing the nature and quality of the soil; the proportions suitable for tillage, mowing, and pasturing, respectively, and especially the quantity of irrigated meadow or low land which is neither tilled or ploughed, with as much particularity as he is able.

The number of acres planted the present year with corn, potatoes, and other vegetables.

The number sowed with winter and spring grains, and other vegetables, specifying the several kinds, and the number of acres planted or sown with each.

The quantity and kind of Manure used for each crop, and the times and manner of applying it. The quantity and quality of each crop.

The number of acres mowed the present year, what proportion upland, what meadow or land that had never been ploughed, the kind of grass and quantity of hay, according to the best of his knowledge, judgment, and belief. His manner of dressing and manuring his meadow or mowing, and laying down his tilled land to grass, the kinds of grass seed, the quantity of

each, the time of year it is sown, and whether with oats, barley, or other grain, or alone.

The form of the barn-yard, and manner of collecting and making manure.

The number of oxen, cows, and young stock, horses, and sheep, kept on the farm through the year, and the quantity of butter and cheese made, distinguishing the new milk from the other cheese, and the breed of cows, whether foreign, mixed, or native.

The number of swine kept and the quantity of pork made.

The labor employed in carrying on the farm, and the quantity of ardent spirits (if any) consumed.

As it is deemed important to ascertain the best rotation of crops, it is desired that the applicants for those premiums will state the kind of crop, if not able to state the quantity raised on the several and respective pieces of tillage, and mowing land described in their statements, for the year next preceding the present one.

The manner of feeding his stock in winter season; whether he gives his milch cows or oxen grain or roots of any kind, and the kind and quantity.

His treatment of calves he intends to raise; whether he lets them continue to suck, or weans them soon after born—how soon—what food he gives them, and how long he continues to feed them.

If it be a sheep farm, the manner he treats his sheep in the winter; whether they are housed or left out in the yard, the food given them, and the time they generally lamb.

The Trustees think, that the utility of this premium materially depends on the particulars above mentioned being stated, with as much exactness as the nature of the business will admit; they do not, however, expect that the mowing, pasture, or tillage land, should be actually surveyed, or the hay weighed: but only that the applicant should ascertain the quantities with as great accuracy as he can without, and state them according to his best judgment and belief. They think it proper further to observe, that while they expect a substantial compliance with the terms above specified, an omission or want of exactness in some of the less important particulars, will not preclude an applicant from the premium, if on the whole his farm shall appear to be so well cultivated as otherwise to entitle him to it.

The whole statement to be sworn to by the applicant. The trustees to be at liberty, in all cases, before they award the premium, to visit by a committee, or such other persons as they may appoint, the farms of the applicants, if they deem it expedient.

N. B.—Claims to be addressed to Benj. Guild, Esq., in Boston, (post paid) before the first day of October next; and the evidence to support them to be sent as above, on or before the first day of January, 1836.

EXPERIMENTS, DISCOVERIES, AND INVENTIONS.

For the experiment of turning in Green Crops as a manure, on a tract, not less than one acre, and proving its utility, giving a particular account in writing, under oath, of the process and the result, $20 0

For the effectual and satisfactory mode of extirpating the Worm that attacks the Locust tree, 100 00

For a new, effectual, and satisfactory mode of extirpating the Borer which attacks the apple tree, 50 00

For any newly invented Agricultural implement, or machine, superior to any designed for the same use, a reward not exceeding twenty dollars, according to the importance of the invention, 20 00

To the person who shall prove to the satisfaction of the Trustees, that his mode of rearing, feeding and fattening neat cattle is best, 20 00

For the greatest quantity of raw unmanufactured Silk, not less than ten lbs. raised by the claimant, and presented before the 1st of December, 1835, 20 00

TREES AND LIVE HEDGES.

For the best plantation of White Oak trees, not less than one acre, nor fewer than 1000 trees per acre —raised from the acorn—not less than three years old, and which shall be in the most thriving state on the first of September, 1835, 50 00

For the best plantation (not before offered for premium) of White Ash, Larch, or Yellow Locust trees, each not less than one acre, nor fewer than 1000 trees per acre, to be raised from the seeds, and which trees not less than three years old shall be in the most flourishing state on the first of September, 1835, 25 00

For the best Buckthorn Hedge, not less than 100 rods, and which shall be in the most thriving state in 1835, 30 00

Claims under the two last heads, together with the proper evidence must be delivered to Benjamin Guild, Esq., in Boston, free of expense, on or before the first day of January, 1836.

FOR DOMESTIC MANUFACTURES.

For the best 10 qr. Woolen Blankets, not less than *ten* pairs, $50 00

For the best Worsted Camlet or Bombazetts, not less than *sixty* yards, 40 00

For the best Linen Sheeting, not less than *fifty* yards, 30 00

For the best Linen Shirting, not less than *fifty* yards, 30 00

For the best Sewing Silk, not less than *ten* pounds, 30 00

All the above must be manufacturad in the State of Massachusetts. And all manufactures, when presented, must have a private mark, and any public or known mark must be completely concealed, so as not to be seen or known by the Committee, nor must the proprietors be present when they are examined—in default of either of these requisitions, the articles will not be deemed entitled to consideration or premium.

Gratuities will be given for specimens of useful and ornamental manufactures, of extraordinary quality, presented at the hall for exhibition, not exceeding twenty-five dollars in the whole.

PLOUGHING MATCH.

On the 14th day of October, premiums will be given to the owners and ploughmen of the three ploughs, drawn by two yoke of oxen, and to the owners and ploughmen of three ploughs drawn by one yoke of oxen, which shall be adjudged by a competent committee to have performed the *best work* with the *least expense of labor*, not exceeding half an acre to each plough. Entries may be made of the names of competitors until the morning of the 14th. Preference will be given to those who enter first; but if, on calling the list at the time appointed, precisely, those first named do not appear, the next in order will be preferred. There will be a committee of three persons to be judges of the ploughing by double teams, and by single teams; the latter to have assigned to them a part of the field distinct from that of the double teams.

Premiums as follows, for double teams—

First Plough,	$15
Ploughman,	8
Driver,	4
Second Plough,	10
Ploughman,	5
Driver,	3
Third Plough,	6
Ploughman,	3
Driver,	2

For single teams—

First Plough,	$15
Ploughman,	10
Second Plough,	10
Third Plough,	6
Ploughman,	4

No driver will be allowed to a single team.

To the plough which shall be adjudged best of all those at the ploughing match, $10 00

Those who intend to contend for these prizes, must give notice in writing to the person who shall be appointed for that purpose, in Brighton, whose name will be seasonably published. The competitors will be considered as agreeing to follow such rules and regulations as may be prescribed by the committee. The ploughs to be ready to start at 9 o'clock, A. M.

RULES AND REGULATIONS.

Animals may be offered for a premium at Brighton, notwithstanding they have received a premium from a County Agricultural Society.

All manufactures and implements, and also the butter and cheese to be offered for premium at the Cattle Show, must be brought to the Society's hall, in Brighton, and entered on Monday, the 12th day of October, to be examined on the 13th.

All entries of animals for the pens, or as working cattle, must be made before Tuesday evening, the 13th.

The ploughing matches will commence on Wednesday morning, at half past nine o'clock *precisely*.

Trial of working oxen, at eleven o'clock precisely.

The public sales of manufactures and animals, at twelve o'clock.

The applicants will be held to a rigid compliance with the rule relative to entries, as well as to the other rules prescribed.

Besides such animals as may have been offered for premiums, any others that are considered as possessing fine qualities will be admitted for sale. And for all animals or manufactures that are intended to be sold, notice must be given to the Secretary, before ten o'clock of the 14th. Auctioneers will be provided by the Trustees.

It is understood, that whenever, merely from want of competition, any of the claimants may be considered entitled to the premium, under a literal construction; yet if, in the opinion of the judges, the object so offered is not deserving of any reward, the judges shall have a right to reject such claims. Persons to whom premiums shall be awarded, may, at their option, have an article of plate, with suitable inscription, in lieu of the money.

In cases where pecuniary premiums are offered, the Trustees may, having regard to the circumstances of the competitors, award either the Society's gold or silver medals, in

lieu of the pecuniary premium annexed to the several articles.

That if any competitor for any of the Society's premiums shall be discovered to have used any disingenuous measures, by which the objects of the Society have been defeated, such persons shall not only forfeit the premium which may have been awarded to him, but be rendered incapable of being ever after a competitor for any of the Society's premiums.

Time of paying Premiums.—The Treasurer will attend at the hall at 5 o'clock, P. M., on the day of the Show, and on the next day at 12 M., to pay all premiums awarded.

All premiums not demanded within six months after they shall have been awarded, shall be deemed to have been generously given to aid the funds of the Society.

By order of the Trustees.

E. H. DERBY,
WM. PRESCOTT,
J. HEARD,
JOSIAH QUINCY, JR.,
BENJ. GUILD,
} Committee.

January, 1835.

We also give the following notice of the "Cattle Show and Fair," which is to be held at Northampton, Mass., on the 7th of October, which if health and business will permit, we shall endeavor to attend.

CATTLE SHOW AND FAIR.—The Seventeent Anniversary of the Hampshire, Franklin and Hampden Agricultural Society, will be holden in Northampton, on Wednesday, October 7th, 1835, to examine and award premiums on Farmers' Stock, Household Manufactures, Silk, Mulberry, &c., conformable to the Societies' Show Bill for 1835.

Competitors for premiums will observe the following rules and regulations.

Registry of the Stock of a whole Farm must be made by the Secretary, (D. Stebbins,) one week before the exhibition.

Registry of Chinese and White Mulberry and Certificates, on or before the 15th day of October.

Registry of Household Manufactures, on or before Monday the 5th.

Registry of Animals in general, on or before Tuesday the 6th.

Registry of Dairy, on or before the morning of the 6th.

Registry of Raw Silk, Manufactured Silk and Cocoons, on or before the morning of the 6th.

See Show Bill published April, 1835.

No victualling or liquor stands will be allowed in the streets on the day of exhibition.

Per Order,
D. STEBBINS, Sec'y.

We find the following notice in the Baltimore Farmer and Gardener, in relation to a contemplated Cattle Fair. It is to be hoped that sufficient encouragement will be given, and the Fair held.

PROPOSED CATTLE FAIR.—Having been solicited to hold a CATTLE FAIR for the sale of superior animals of the various IMPROVED IMPORTED, and other breeds, we take this occasion to notify all owners of any of the following kinds of stock, that if sufficient encouragement offer, we shall on the *day following the termination of the Central Course Races, this fall,* hold the same. All owners of such stock in this, and the adjoining states, who may be disposed to send the same to our fair, will communicate with us by letter, in time for their letters to reach us by the 19th instant, it being our desire to publish our prospectus on the 22d, should sufficient encouragement offer.

We desire to embrace within the range of animals to be sent:

IMPROVED DURHAM Short Horns: full blooded, and grades.
DEVONS, full blooded, and grades.
Superior oxen, well broken, whether of improved imported, or native kinds.
Superior milch cows of native stock.
SHEEP—Improved Bakewell,
Saxons,
South Down,
Merinoes,
Dishleys,
and their respective grades.

☞ In every instance, where the stock to be sent, are of the imported *full bloods,* or of their respective *grades,* certificates of pedigree, *well authenticated,* must be sent, as it is our wish to make our FAIR a *mart* where the agriculturists of our country may resort with a *certainty* of getting a genuine article — just such animals as they may *believe* they are buying. We shall publish a full prospectus in our next number, and in the meantime we request such gentlemen as may have any of the above articles to dispose of, to address us by letter in time for their communications to reach us by the 19th instant.

SILK MANUAL.—The proprietors of the *Farmer and Gardener, Baltimore,* have in the press, and will speedily publish, *a complete Manual of the Mulberry and Silk Culture;* compiled from the best and most authentic sources. As the object is the promotion of a great public interest, the cost will be moderate.

[From the Cultivator.]

ON THE UTILITY AND BEST METHOD OF COOKING FOOD FOR DOMESTIC ANIMALS.—This subject has engaged the attention of practical men in Europe and in this country for many years, and it is a branch of rural economy at all times worthy the careful investigation of the farmer. The Highland Society of Scotland have, in a particular manner, directed the public attention to the comparative advantages of feeding farm-stock with prepared or unprepared food, and have, by liberal premiums, induced numerous experiments to be accurately made, and elicited much valuable information. The conclusions which have been drawn from these and other experiments, seem to be,—

1. That a great saving, some say one half or more, is effected by cutting the dry fodder for horses and neat cattle, and feeding it with their provender or grain, in two or three daily messes, in mangers. Not that the food is thereby enhanced in its inherent properties, but that given in this way it all tells—is all consumed, all digested, all converted into nutriment. There is comparatively none wasted, or voided, without having benefitted the animal. In the ordinary mode of feeding in racks, yards, and in open fields at stacks, it is well known that much is lost, from the difficulty of masticating uncut hay, straw and stalks, and from its being trodden under the feet of animals and spoilt. Much labor is besides saved to the animal, as cut food requires less mastication, and the animal enjoys a longer period of rest.

2. That grain and pulse, as cattle food, is enhanced in value by being ground or bruised before it is fed out, so much as to warrant the expense of sending it to mill, and the deduction of toll. Indian corn, oats, rye, and other grain, given to farm animals in a dry, unbrokrn state, it must have been observed by every one, particularly when the animal is high fed, are often volded in a half or wholly undigested state, and are virtually lost. This does not happen when the grain has been ground.

3. That although roots, as ruta baga, mangel wurzel and potatoes, are improved as fattening materials for neat cattle, by cooking, the advantages hardly counterbalance the extra expense of labor and fuel.

4. That for working horses, cooking the roots we have enumerated, and feeding them with cut hay and straw, is of manifest advantage; and that thus fed, they supersede the necessity of grain.

5. That in fattening hogs, there is decided economy in grinding and cooking the food. The experiments upon this subject are many and conclusive. Some estimate the saving at one half the quantity of food. Taking into account the various materials on a farm, which may thus be turned to account, we are satisfied that one half the cost of making pork may in this way be saved. Swine are voracious animals, and will eat more than their stomachs can digest, unless assisted by the cooking process. There are upon the farm many refuse matters, as pumpkins, squashes, small potatoes, early and defective apples and apple pomace, which are of little value, except as hog food, but which, if well husbanded, cooked and mixed with ground provender, contribute essentially to cheapen our pork. It has been questioned whether the articles we have enumerated are nutritive to pigs, when given in their raw state; while all admit, who have made the experiment, that they are highly so when cooked. Cooking undoubtedly adds to their nutritive properties, as it does to the nutritive properties of Indian meal.

Before we offer our views of the most economical mode of cooking food for hogs, and of the apparatus to be employed, we beg leave to submit the plan of a hog pen or piggery, which, with some modifications, is the model of one we examined at the Shaker village in Niskeuna.

Fig. 1.

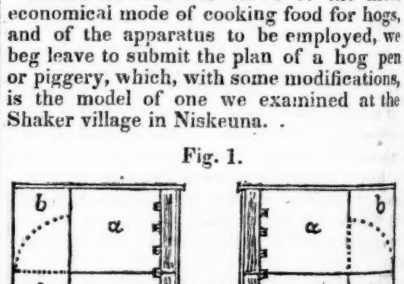


Fig. 1, exhibits a ground plan of the building, showing a gangway in the centre, with a range of pens on each side. The breadth is 26 feet, and the length may be adapted to the convenience of the builder. The pens are six feet broad and ten feet deep, with a cross partition four feet from the rear, and a four feet door, which is used to close the passage between the front department, (*a*) and the department *b*, or to extend the partition between the pens. The different uses of the doors are shown on the two sides in the cut. The pens are calculated for four hogs each, and the section here exhibited will therefore accommadate 24. When the pens require to be cleaned, the doors are shut into the cross partitions, as at A, so that the rear presents an unin-

terrupted passage, the hogs being confined in *a a*; and as soon as the pens are cleaned, these doors are thrown back as at B. The troughs are embraced in the gangway.

Fig. 2.

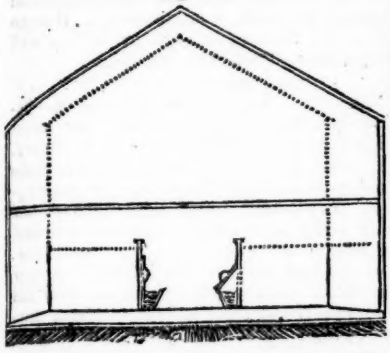


Fig. 2, shows a cross section along the dotted line A B. The partitions are three and a half feet high, the posts eleven feet, giving seven feet to the basement, and four to the upper story, below the roof. The position of the feeding troughs is here shown. They are provided with lids, hung with stout hinges above, and may be let down so as to exclude the hogs from the troughs while they are being cleaned or replenished with food, or raised up, at pleasure, as shown in this section. Each lid is provided with an iron bolt, (fig. 4,) which works in staples, and confines the lid in the position required. This section also shows the slope of the floor in *b b*, so constructed that the urine may drain off. The dotted lines represent the size of the building, when, instead of the apartment *b b*, it is wished to let the hogs run in an open yard. For small farmeries, a single range of pens and the gangway may suffice. The loft serves as a store room for hog food, &c.

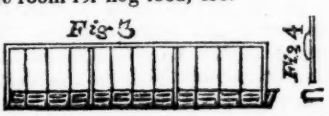


Fig. 3, is a section along C D, showing the studs that prevent the interference of the hogs while eating.

The boiling or steaming room is in one end of the building, and communicates with the passage and the loft.

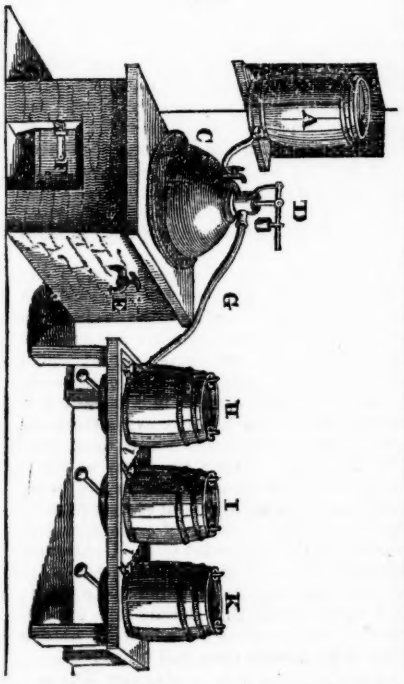
The peculiarities, or rather the advantages of this piggery, consist in the facility which is afforded of cleaning the pens and the troughs, and of depositing the food in the latter, without being incommoded by the hogs, and in preventing the hogs worrying each other.

We shall now exhibit the model of a steaming apparatus, calculated for a large establishment. We have shown the plan to an intelligent master in one of our furnaces, who estimates the cost of boiler, pipes, and cocks, at $50.

"A is a barrel or other vessel for containing water and supplying it to the boiler C. D is a safety valve. At the upper part of the boiler at C are placed two tubes, with stop cocks. One of these tubes terminates near the bottom of the boiler. Upon the stop cock being turned, water should always issue from this tube. When, therefore, steam issues from it, and not water, this indicates that the water is too much boiled away, and consequently that there is a deficiency of water in the boiler. The other tube terminates within the boiler, near the top. Upon the stop cock being turned, therefore, steam ought always to issue forth. But should water in place of steam come out, then it will appear that the boiler is too full of water. In this manner the attendant, by turning either stop cock, ascertains whether there is a deficiency or excess of water in the boiler. The quantity of water could indeed be regulated by other means; but that described will be found sufficient in practice. F is the furnace, and E is a pipe with a stop cock communicating with the boiler. When it is wished to obtain hot water, it is obtained by this pipe. A pipe G communicates with the barrels H, I, K, and conveys the steam to them; and in these is placed the food to be steamed. By means of the stop cocks *l, l, l*, the communication can be cut off with any of the barrels, so that the steam may be admitted to one barrel or two barrels, or three, as may be wished. The barrels in the figure are three, but the number may be extended. Each barrel has a moveable lid, which is kept down by screws, and a sliding board below, by which the food, when ready, is withdrawn. The barrels are raised on a frame, so that a wheel barrow or vat may be placed below, and the food at once emptied into it."

"By means of an apparatus of this kind, roots and other parts of plants may be steamed in a convenient and economical manner."

Fig. 5.



The relative advantages of steaming and boiling will very much depend, we suspect, on the extent of the establishment. We have tried both, though our steamer was imperfect; and have come to the conclusion, that when the number of hogs to be supplied does not exceed 15 or 20, boiling is preferable,—as with a good boiler, of the capacity of 30 gallons, from 12 to 16 barrels of food may be easily cooked in a day. But much depends on the judicious setting of the boiler, so that it may receive the whole advantage of the fire. For this purpose the brick work should be made to conform to the shape of the kettle, leaving a space of three or four inches between them, until it reaches nearly the top of the kettle, when a tier of brick set edgeways is projected for the flange of the boiler to rest upon; and the bottom of the fire flue should be above the bottom of the kettle, or about parallel with the commencement of the slope which rounds its bottom. By this means, the flame is thrown upon the sides and bottom, and in a manner that the whole boiler is collapsed with it on its passage to the smoke flue; and the brick work being heated constantly refracts back its heat upon the boiler. A tight cover should be laid over the cooking food, to prevent the free escape of the steam, by partially confining which, the cooking process is greatly facilitated.

There should be appended to the hog house an open yard, for straw, litter, weeds, &c., which the hogs, during summer, will work into manure, and into which the dung is thrown from the pen.

Hogs are subject to various diseases, particularly if shut up in a close pen, during the time of fattening, which are often suddenly fatal. Prevention is here easier than cure; and many farmers prefer giving their hogs yard room, where they can root in the earth, which is deemed a preventive. Others give them occasionally rotten wood, charcoal, sulphur, antimony or madder, all which are considered as aperients, cleansers or alteratives, and consequently as conducing to health. Salt is all important, and should be habitually blended with their cooked food.

[From the Genesee Farmer.]

CROPS OF 1835 IN EAST BLOOMFIELD.—Being disabled by ill health from participating in the several labors of the field during the present harvest, I have spent some of my leisure hours in riding about town, observing the several crops with which our fields are so bountifully loaded; and think I am prepared to give an estimate, approximating somewhat towards the truth, of the amount of our crops, as compared with former years.

Our staple commodity, Wheat, is a short crop. Much was said early in the spring of its entire failure, and of late that it was a good crop, equal to any former year. The truth I think lies between the two extremes. Much that was sown has failed entirely. Very many fields will yield only from one fourth to half their usual quantity. But few fields come up to an average crop; yet some I have seen that produced an uncommonly heavy crop. Of the causes of such an unusual dissimilarity in the produce of our fields, *location* is perhaps the most important. Fields protected from west winds by hills, woods or orchards, suffered the least. Grain sowed early upon summer fallows, which got a good growth in the fall, withstood the storms of April pretty well, particularly where the lighter soils prevailed.

Wheat late sown, and especially *after* wheat, did but little more than pay for harvesting. Of the *varieties*, I cannot learn as one has a preference over another. I have heard of no complaint of insects or smut; but rust has exceedingly corrupted much of the precious seed. *Steer caut* also continues with rapid strides to extend over our fields. Many dark spots, which at a distance give a very *sombre* appearance to our fields, owe all their coloring to this most pernicious weed.

Barley.—This crop is uncommonly good—rarely if ever better. Owing to bad weather I should think not as much sown as usual. Many of our heaviest wheat growers have a prejudice against barley, on account of its ripening just as they are commencing wheat harvest. This is certainly its most objectionable feature, and is indeed a serious one. The grand Temperance cause having of late set strongly against beer, it may be supposed that it would affect the raising of barley, but its value as

feed will continue it as a favorite fallow crop.

Oats.—More oats than usual were sown last spring, owing perhaps to the bad prospect for corn and the high prices of coarse grain, and they are with us, as every where else, an uncommonly fine crop.

Corn, at its commencement, looked extremely dubious. It, however, came very rapidly forward in the months of June and July. It now promises a fair crop, if the frosts permit it to come to maturity. We cannot, however, rival Earl Stimson in raising corn. Instead of raising crops averaging 100 bushels the acre for ten years, we do well if once in ten years we come up to 50 bushels to the acre.

Grass is light. It is obvious that such seasons must be unfavorable to grass, and the late rains and sunshines will not entitle it to the appellation of an average crop. Pastures are now fine, and fall feed will be abundant.

Potatoes very fine. An unusual quantity were planted, and the yield will be abundant.

Buckwheat looks well, and the season is thus far favorable. It makes a good substitute for corn in fattening swine.

Peas will be abundant. The present crop is the finest I ever saw.

Rye.—I have not seen a single field of rye, nor near as much growing among wheat as usual.

Flax.—What little I have seen was encumbered with weeds, and of too rank a growth to make the *finest* of linen.

Mangel Wurtzel.—Many of our farmers are trying this plant on a small scale. The drowth of May prevented the vegetation of much of the seed sown, but that which did grow looks well. Its fine large leaves give an air of luxuriance to a garden, and I have no doubt but this will be a favorite root. It is more congenial to our soil, and requires less attention during the season of haying and harvest, than either ruta baga or turnips.

The season of harvest has been upon extremes. The fine weather which was so favorable to farmers whose grain was ready for the sickle, did not much benefit us, as our harvest was at least ten days later than in towns west of the river. Some wheat yet remains in the field. Oats are yet out—many fields very badly down. Much hay is yet to cut, and the rains are sufficiently frequent to prevent the drying of that already cut. Laborers are extremely scarce. Summer fallows are not in that state of forwardness usual at this season of the year.

Although in many things we seem to be frowned upon, we yet have abundant reasons for gratitude for the health and competence which so generally attend us.

Yours, O. P. Q.

East Bloomfield, August 25, 1835.

[From the Cultivator.]

UNDER-DRAINING — CORN.—Sir: As a subscriber to the Cultivator, I am satisfied that it is calculated to advance the interest of the practical farmer.

I am willing to contribute my mite to help forward the improvement of the farmer's mind and soil. If you have a spare number for April, I should feel obliged if you would send me one, as none were received at the post-office in this place of that number.

I am satisfied that the mode of underdraining recommended in the March number, is correct as respects springs. But there is another case somewhat different. I refer to the oozing near shelving rocks, after heavy rains. In this case it is important to place the drains in such a manner as to prepare the ground to receive the greatest quantity of water possible. This is done by making the drains as near level with the outlet as possible; and thus removing the standing water to a considerable depth, say four or five feet.

In Mr. Clark's table, showing the produce of corn at different distances, the kind of corn planted is not stated. This is a very important point in the culture of corn, as some kinds require near double the distance of others. The kind I have planted for 35 years, I think will yield most at about five feet distance between the hills each way, where the ground is very rich. On our common land, without manure, I wish to plant from three feet nine inches, to four feet each way. This kind is the large eight row dented yellow. I suppose I have had 80 bushels of shelled corn from an acre without manure; but this is not common. We call from 40 upwards, a good crop. As I have never made any nice experiments and measurements, I do not pretend to precision.

But the particular point to which I would call the attention of my brother farmers, is the selection of seed corn. In the June number of the Cultivator, is an article headed, "The Corn Crop," stating a number of experiments and observations. An observation on the 2d experiment, is that to which I would turn the attention of all, that it may be fully tested. The observation to which I allude, supposes that the particular kind there mentioned, although the most prolific, had "deteriorated by planting from inferior ears."

Now I wish every farmer that takes the Cultivator, would go into his corn field as soon as the corn is generally too hard to boil, or when the forwardest ears begin to turn yellow, with two baskets, and select from the stalks that bear two ears each, putting the upper ear in one basket, and the lower one in the other, leaving the husk on till he brings the corn home, then strip up the husk and either tie them across a pole or braid them into a trace, as some term it, and next spring plant each separate; note exactly the produce of each, and give the result to the conductor of the Cultivator. I have tried it on a small scale some twenty-five years ago, and am satisfied for myself; but I have found that telling my experiments is not so good a way as to induce others to try; then they will know.

JAMES MEAD.

Greenwich, Ct., Aug. 21, 1835,

EGGS.—A poulterer observed, the other day, that he was constructing a building purposely for his domestic fowls, where they would produce eggs through the winter. He is not the only one who supposes that human ingenuity can lay the feathered races under an increased contribution of that sort. Others occasionally change their old stock of fowls for a better kind, which will lay all winter. Nothing can be more unphilosophical, or betray a greater ignorance of natural history. Nature never designed the development of any more eggs in the oviducts, than could be matured into successive broods, when her scheme has not been interrupted by taking them away as fast as protruded. And further, the law regulating their developement is the same which regulates both the animal and vegetable kingdoms,—viz., the future offspring is not allowed to appear, till the season has commenced, favorable to the supply of appropriate food. Any departure from this most certain regulation, on which both the multiplication and maintenance of a species depends, is an anomaly. Human beings are the only exceptions to this well known law.—[Scientific Tracts.]

TRY IT! TRY IT!!—I say, try it,—because practice in farming, as well as in religion, is worth much more than theory. Thy what, you ask? I answer, try to make some good and profitable use of your apples. Try feeding your horses, cows and swine with your apples, and you will find the benefit far exceed your expectations. You will find that it is far better to let your hogs have your early apples, as they fall from the trees, than to make them into cider, either by letting them run in your orchard, or gathering and feeding them in the pen. You will also find that it is much more profitable to gather your late fall and winter apples, and house them in good order for keeping, and feed them as your stock may need, than to make them into cider, and then to purchase shorts and bran for them.

Apples and potatoes of the same weight are about equal for swine when steamed,—in a raw state, apples are much the best. Now I say again, try it!

ONE WHO HAS TRIED IT.

Brighton, September 4, 1835.

The *Guard National* of Marseilles has the following: "The gathering of the silk is concluded throughout the department, and the spinning mills are in full activity. It has been generally very productive, and the prices of the cocoons very good, being at the rate of from 32 to 33 sous a pound, or 160 fr. the quintal of 40 kilogrammes eight hectogrammes. The quantity gathered is estimated at 7,000 quintals, which will give to the department a return of 1,200,000 fr. These 7,000 quintals will produce 650 quintals of yarn, yielding a gross return of 1'430,000 fr., leaving a profit of about 200,000 fr. for the spinners. This branch of trade is annually increasing; numerous plantations of mulberry trees are being made, and will shortly form the principal source of wealth of this department. The corn harvest is drawing towadrs a close, and is very promising. It is, however, apprehended, that the late variations in the temperature may have injured the ears, and that the quantity will not be so great as was hoped. The high price of oats has led to a great increase in the cultivation of this grain, which is very promising. The appearance of the vines and olive trees is also very fine."

The number of inhabitants in the territory of Arkansas, with the exception of two counties, which have not yet been heard from, is 51,809.

FOR SALE,

NEW LEICESTER SHEEP, AND BERKSHIRE PIGS.

A few Rams and Ewes, of pure blood, also Cotswold and New-Leicesters, equal to any in the Union.

ALSO,

A quantity of Berkshire Pigs, (ready for delivery the first week in November next,) directly descended from a part of the Stock imported by S. Hawes, Esq., of Albany,—price $5 per head.

A. & G. BRENTNALL.

Hamptonburgh, Orange co. N. Y., Sept. 21st, 1835. 10

[*From No. 4, of "The Silkworm."*]

MR. RHIND'S INSTRUCTIONS.

There is nothing in the literary world, nor scarcely in the moral, that I more abhor than editorial disputes, especially when they appear to be instigated solely by self-interest; and I had, therefore, perhaps too fondly, hoped to avoid them. But a case has occurred, (to me, certainly very unexpectedly,) in which I do not see that I can do it with propriety.

I announced in the first number of the "Silkworm" my intention to commence with the incipient preparations for the culture and management of silk, and, proceeding gradually, to give timely instructions, through every stage, as the business progresses; and I have endeavored to adhere strictly to that course. I considered the voluminous detail of the experimental operations of Count Dandolo, and the scientific dissertations of Dr. Pascalis and some others, as calculated to bewilder rather than instruct the silk adventurer, and I therefore gave no extracts from them.

In my second number, I drew up such brief and simple, and, I believe, correct instructions, as I considered necessary and sufficient for feeding and managing the worms: not in the *omnium gatherum* style of making up a newspaper, with borrowed paragraphs, and filling the interstices with miscellaneous scraps and ends, but expressly adapted to the subject alone.

I had given, in the first number, Mr. Rhind's account of the detestably awkward and dirty manner of producing silk in Turkey, which still furnishes the first quality of silk; and having been presented by a very respectable and highly esteemed friend with a manuscript copy of the same gentleman's account of conducting the same business among the more enlightened and scientific inhabitants of Italy, and which the son of Mr. Rhind had taken pains to translate from the Italian—and which, on examination, appeared to me to contain instructions which, though specific and minute, could not be considered superfluous or tedious,—I therefore considered, after the plain every-day instructions I had given, that to subjoin those of Mr. R. might be at least acceptable to those who have a taste for proceeding systematically. But, at the same time, to guard against possibilities, I stated that instruments for measuring the heat and moisture were not absolutely necessary, and that those who did wish to procure them could, no doubt, produce good silk, and at good profit, without them.

I did not give the manuscript a second reading, and I had no judicious and experienced culturist to tell me that the very mention of thermometers and hygrometers and stoves would frighten every silk-grower out of his wits, and his worms from their spinning. Had I foreseen any of these things, or had I known that Italy, though in exactly the same latitude as Connecticut,* has the climate and temperature of Kamschatka or New South Wales, I should perhaps have decided differently. But I have examined the work a second time, and like my friend of the Culturist, have taken able counsel; and we confess—that is, myself and my counsel confess,—that we can discover nothing in it to frighten any body who was not predisposed to make bugbears.

The whole process in Mr. Rhind's instructions certainly differs very little from that followed in Connecticut, except in regulating with accuracy the heat and moisture. There are still strong grounds to believe, notwithstanding the high authority of the Culturist to the contrary, that the temperature takes a much greater range in the Atlantic States than in Italy: damage has been suffered by frosts in every month in the year. Even in the present year we had weather in June which I should think must have been very uncomfortable, if not absolutely destructive, to silkworms. I have known instances in Connecticut of worms showing symptoms of disease, and even dying, which might probably have been avoided by proper attention to the state of the atmosphere.

In the northern states, most families are supplied with one or more stoves, which being out of use in the summer season, can be used in the cocoonery. In the southern states they will not be needed. Thermometers are peddled over the country at so cheap a rate as to be within the reach of every one who will engage in the silk business; and still, those who think they cannot afford to pay $2 or $2.50, may, as I have before stated, do without them. A hygrometer may be constructed by any person of common ingenuity at the expense of 25 cents and two hours' work; and I should certainly think it would be worth that, merely to be warned of approaching changes of weather.

From these facts I am still of opinion that any person who wishes to proceed understandingly in so important a business as the culture of silk, would be highly benefitted by Mr. Rhind's instructions;* and I can see no reason why those who do not wish to proceed so should be frightened, as they are at liberty to take their own course.

But previously to quitting the ground on which I presume to differ from the editor of the Culturist, I would observe that people may err from too little instruction as well as too much. There are people who never learn much, because they think they know enough without; and others whose heads are overstocked with knowledge. It would be well to steer a middle course, but I think better to err a little on the side of knowing too much than too little.

The Culturist observed that there is "no more difficulty in raising silkworms than in raising a brood of young turkeys," and Mr. Gay, whose authority I consider behind no man's, stated to me that it was as easy to raise silkworms as pigs. Both are true with proper modifications. A great proportion of the young turkeys hatched in this country are lost for want of proper management, and even pigs stand in need of care. But silkworms, though they may chance, from lucky circumstances, to thrive well for several seasons, with little or no care at all, yet experience proves that, however favorable this country may be to their health and growth, they are still liable to diseases and to death; and there can be no doubt on any reasonable mind, that cases have occurred, even in Mansfield, with its long experience, in which worms enough have been lost, for want of having the temperature properly regulated, to pay for fifty thermometers, which might have been saved by the use of one.

I would therefore recommend to adventurers in the silk business, not to be frightened from their intentions by the apprehensions of any insurmountable difficulties, mysteries, or bugbears; but to remember that the silkworm is a vigorous and healthy insect, and as likely to live in a healthy atmosphere of suitable temperature as a young turkey or a pig, but it is clothed in a thin and delicate skin, which is changed and replaced by a new one once in a few days, and is not therefore calculated to endure great extremes of heat or cold, nor sudden changes from one to the other. If the weather is favorable, he will have no need of a

* Rome and Hartford differ in latitude eight miles. But the temperature of Italy is remarkably mild and uniform, and that of all the Atlantic States as remarkable for extremes and sudden changes.

* The philanthropic author of the instructions ought not to be charged with the terrific scarecrow of the half degree. The instructions respecting the temperature were given by the scale of Raumer, which, as that scale is not much used in this country, I reduced to that of Fahrenheit, with which I presumed almost every body in the country was acquainted. In reducing it, I threw away the fractions over or under, except when there was an exact half, in which case I put down the half, without the slightest apprehension of harm arising from it.

stove or thermometer, but as they are very cheap, there will be no harm to be provided with both.

DISEASES OF SILKWORMS.

Before proceeding to the second distinct branch of silk culture, *that of reeling*, it will be well to pay a little attention to the diseases to which silkworms are liable, both as to prevention and cure, but more especially to the former; for though, perhaps, all their known diseases can be cured, it is much easier, and certainly much better, to prevent them.

The first important step, both in the prevention and cure of diseases, is to know their causes. The chief causes of diseases among silkworms are

1, Such as arise from the eggs;
2, Unhealthy location;
3, Bad air in the cocoonery, rendered so by mismanagement;
4, Improper food and feeding;
5, Want of room;
6, Sudden and extreme changes in the temperature.

1, *Eggs.* There can be no doubt but that the same variety of the silkworm may be improved or deteriorated, by good or bad management, the same as any other domestic animal. They may be increased or diminished in size, and rendered hardy or weakly and sickly, as proper attention is paid or neglected in the choice of worms for breeding, and in carefully selecting eggs of good quality. The same stock may, no doubt, be improved in healthiness and other good qualifications, from one generation to another.

When the male and female moths come together for coupling, a little time should be given for the female moth, after leaving the cocoon, to divest herself of excrementitious fluid. At the time of coupling, the room should not be colder than moderate summer heat. If below that, the healthy state of the egg is injured.

The eggs should be laid in a dry room, as dampness injures the eggs by preventing their drying. They should be kept in a cool dry place; long exposure to dampness renders them less likely to hatch, and if hatched, the worms will be less vigorous and healthy.

If the eggs are heaped together in any considerable thickness, they are apt to heat and spoil, even at low temperature.

If good eggs are procured and the above observations duly attended to, the worms, when hatched, can scarcely fail to be healthy and strong.

2, *Unhealthy locations.* Low marshy situations, such as are unhealthy to the human constitution, are probably equally or more so to the delicate organization of the silkworm.

3, *Bad air in the cocoonery, rendered so by mismanagement.* Experience has decided that cleanliness is absolutely essential to the health of silkworms in this country, whatever it may be in any other. The great quantity of excrement and other filth produced, especially in the fourth and fifth stages, if not frequently removed, will ferment, and produce noxious exhalations, which produce a diseased state of the worms in a few hours. A damp state of the atmosphere in the apartment should by all means be avoided, and fresh air should occasionally be let in, whenever the state of the weather will permit it.

4, *Improper food and feeding.* The leaves hould always be dry, when fed to the worms; wet leaves give them a diarrhœa. Even the leaves which grow in moist ground ought to be given with great caution, if given at all. Young worms should be fed upon young and tender leaves; but an experienced silk grower assures me that after the third moulting, young leaves produce a diarrhœa. In wet weather, if the leaves have not been gathered before the rain commenced, they must be dried so as to contain no moisture but their natural juice. In large laboratories, they will probably be dried by fire or steam. But in families, not provided with such conveniences, they will, of course, use such means as they have. They can be dried on a clean floor, which will be aided by turning and stirring, as in drying hay. This operation may also be assisted by heat in various ways, as by coals in a portable furnace, or by a fire in a fire-place. But care should be taken to have the floor perfectly clean.

When they are dried thus artificially, portions of water will still remain in the little folds, and between the leaves that stick together. To remedy this, the following plan is proposed in Mr. Rush's Manual.

"Twenty or thirty pounds of leaves should be spread upon a large coarse sheet, and doubling it down in the shape of a large sack, (that is, doubling one half over the other,) two persons should hold the four corners, and shake the leaves well about, from one end of the sheet to the other, until they appear to be quite dry, which will be the case in a few minutes. Should the leaves be only wet with dew, drying them with the sheet will be sufficient."

Young worms are apt to become diseased by being fed with old full grown leaves. Such should only be given to the worms in the last stages.

Diseases may be brought on either by over-feeding or by scantiness of food. In their last stages they require attention and copious feeding to sustain them in health; and yet they are at times so voracious, that they would injure themselves by over-eating.

The whole business of feeding, however, is involved in no mystery. There needs but careful attention, and deliberate, sound judgment, during the short season of their feeding, to secure health. Their meals should never be neglected beyond the regular time; and no more should be given than they eat with an apparently sharp appetite.

5, *Want of room.* There is perhaps nothing more essential to the health of silkworms than fresh and healthy air. It is asserted by naturalists who have examined their organization, that they do not breath by the mouth, but by small holes near the legs, called in the language of anatomy *spiracles*. When the worms are heaped or crowded together, those breathing holes become stopped, and their breathing becomes interrupted, and sickness follows. The worms ought not to be so thick as to touch each other, if it can be avoided.

6, *Sudden and extreme changes of temperature.* To ensure regular growth to the worms, and the gradual developement of their fine organs, it is necessary to protect them against sudden changes of temperature. The creatures which Nature has designed for enduring extremes of heat and cold are wisely provided with thick coverings of hair or feathers, which heat penetrates but slowly, and with skins of thick and firm texture, and are thereby guarded against injury. But the silkworm is limited in its lifetime to a few days, and those in a warm season; and though its constitution is active and vigorous, its little body is covered with a thin delicate skin, a mere peticle, never ten days old, and therefore of exquisite sensibility. It cannot, of course, be expected to endure with safety those sudden changes which are common in the Atlantic states of 30 or 40 degrees in 24 hours.

By the sudden chill, they become torpid, and cease to eat;

and even if they survive their health is injured. By a great and sudden increase of heat, especially after being thus chilled, and more especially in the time of spinning, they become relaxed, and sometimes die. It is stated in Mr. Rush's report that, in 1825, vast numbers died at Mansfield from sudden heat.

SPECIFIC DISEASES OF SILKWORMS.

It is doubtful whether the worms are liable to any diseases but what originate from one or the other of the above causes, and may be prevented by proper management; but people who are fond of system have given specific names to such cases of disease as can be distinguished by symptoms susceptible of recognition, the principal of which are distinguished by the following names and symptoms.

The Grass.—A general swelling which appears during the moultings. The worms eat and grow, but refuse to spin, and are whiter than the others.

Consumption.—They exhibit an exhausted appearance, grow slowly, cease to feed, and are soft to the touch. It makes its appearance chiefly after the commencement of the third moulting, and is very fatal.

Jaundice.—This disease is similar to the grass, only it begins after the fourth age, when the worms are near spinning. Instead of attaining to maturity, they swell, and gold-colored spots become visible on their bodies.

Numbness.—The worms grow stiff and die. They are attacked by it at any age. Their color is at first scarlet, but changes to white. When dead, the worm becomes hard, and is covered with a kind of mould. This disease is supposed to be contagious, and it is therefore necessary not only to remove the worms from the nest, and clean the room, but in a particular manner any thing they have touched.

To conclude, it can hardly be expected but that among half a million or a million of worms, some few may be from time to time diseased; but there is no question but that, with careful and judicious management, any extensive mortality, or even sickness, may be avoided.

MISCELLANEOUS ARTICLES AND EXTRACTS.

In the first number of the "Silkworm," I stated what then appeared to me correct, that the practicability of successfully cultivating the Chinese mulberry, or Morus multicaulis, in the Northern states, was yet so far doubtful, the experiments had best be left to amateurs, who have wealth and leisure to devote to such purposes. But I have the satisfaction to learn from various quarters, that, notwithstanding the unparalleled severity of last winter, it is flourishing in many places, and bids fair to resist the vigor of our winters, at least as well as, if not better than, the white mulberry.

This information must certainly be cheering to the adventurers in silk culture, for if it requires a little extra labor to get it fairly introduced and acclimated, every hour of that labor will save double the number of hours' labor afterwards, besides doubling the profits of the business.

It appears, however, that this is not a distinct species of mulberry, but only an artificial variety, and that, of course, the seed cannot be depended on; but that it must be raised, as it has been, from time immemorial, in China, from grafts, cuttings, or layers. Mr. Kenrick observes, "Seeds [*of the Chinese mulberry*] sown near Venice, have, it is stated, produced varieties, but none like the pure Morus multicaulis. I have myself examined about forty small trees, raised in 1834, from seed sent from China; but they appeared to differ from the true kind. Their leaves were indeed handsome, but I saw none with the curled or convex leaf." But all this I consider no objection to the Chinese mulberry, for it is full as easy, if not easier, to propagate from the wood, than it would be from the seed.

I would, therefore, advise every one who is engaging in the culture of silk, not to relax by any means in attention to the white mulberry, but to procure, if possible, one or two grafts or cuttings from the other, and pay all possible attention to propagating it as speedily as may be.

ATTENDANCE.

To attend and feed worms with the Chinese mulberry, one person for 500,000 will be sufficient the first week, two the second, four the third, and seven or eight the remaining two weeks. With the common or white mulberry, it will probably require twice that number.

Extract from the New American Orchardist. (By WM. KENRICK.)

It is to this tree [the Chinese mulberry] that the disciples of Confucius acknowledge their indebtedness for the prosperity and solidity of their empire.

The Morus multicaulis, or Chinese mulberry, since its introduction to France, seems destined to replace, every where, the common white mulberry, for the nourishment of silkworms, such is its decided superiority over all others. The tree is beautiful, and of a rapid growth. The leaves in a dry and arid soil are of less size and eliptical, their breadth being six inches and their length eight; but in a light, friable, rich, and humid soil, they are large and cordate, extraordinary specimens having sometimes measured more than a foot in breadth, and fifteen inches in length. Their upper surfaces are convex or curled, and of a deep and beautiful shining green. The fruit, which was unknown in France till 1830, is long, black, and of appearance sufficiently beautiful, its flavor good, being intermediate between that of the red and that of the black mulberry. Its produce is abundant.

REMARKS ON FEEDING.

The quantity of silk which the insects afford is in proportion to the amount of food consumed. The duration of the silkworm is prolonged by a cool season, and by scanty or irregular supplies of food, but the amount of silk is in this case greatly diminished. When a crop of silkworms thus linger, either through cold or famine, for thirty or forty days, the amount of silk which they afford is but inconsiderable; while the bounteous harvest, afforded by a crop of silkworms, fully fed and well attended, which, in a warm temperature, finish their labors in 24 days, produce more than a double amount of silk. The silkworm feeds night and day, and the more it is fed the faster it grows, and the sooner it will come to maturity, and the greater will be their size; and in proportion to the dimensions of the insect will be the size of the cocoons, and the amount of silk produced. In China it is stated that the silkworms are fed every hour, night and day; the *phalena* being a night insect.

CHINESE MULBERRY.

I have just read a paragraph in the Northampton Courier, describing the cocoonery of Mr. Whitmarsh, and the arrangements of that gentleman for prosecuting the culture of silk. The Courier says Mr. Whitmarsh does not at present feed his worms upon the Chinese mulberry. That plant is yet so rare, that growers are anxious to multiply them by laying down all the roots. "On some of the Chinese trees the berry is now found, and great care will be taken to preserve the seed, so that the *precise character of the plant propagated from them may be precisely known.*" I am glad to be able to inform the Editor of the Courier and Mr. Whitmarsh, that the "*precise character of the plant propagated*" from the seed of the Chinese tree is already *accurately known* in Connecticut. Some three or four years since, a scientific gentleman of New-Haven obtained from Prince's nursery at Flushing, several shoots of the Chinese mulberry, for the purpose of ascertaining whether it was a new species, or a variety of either of the kinds before known in this country. The shoots grew with extraordinary luxuriance and vigor. A layer from one of them obtained a height of more than eight feet last sum-

mer, and bore leaves a foot or more in length, and nine inches in breadth. The second year after transplanting, a few seeds were obtained from one of the trees, and I saw one of the seedling plants between three and four feet in height, the growth of a single season, bearing in every respect a precise resemblance to the parent tree—the same rich and delicate leaf, and the same thrifty growth. The botanical knowledge of the gentleman is unsurpassed in this part of the country, and he expressed to me his conviction that the Morus multicaulis was a distinct species, and that it might be propagated to any extent from the seed.—[Middletown Advocate.]

FALL SOWING.

The communication of Mr. Boynton on sowing mulberry nurseries in the month of August, which we published in our last number, and the almost entire failure of the seed sowed the last spring, has drawn our attention to fall sowing, and convinced us, that, with a trifling extra labor and expense, the plants from seed sowed in the fall may be made to attain nearly the height the second year with those from seed sown the preceding spring. The plants from seed sown in the spring are often killed to the root by the frost of the succeeding winter. Early in the spring of the second year, the roots throw out shoots which grow luxuriantly, but the growth of the first year is in such cases entirely lost. Now, if they are sown in the fall and protected through the winter, the first year's growth is saved, and consequently they are nearly as large as those sown the preceding spring, being unprotected. Mr. Boynton proposes protecting them by covering them with straw and horse manure.

This is doubtless a good method, as it accomplishes two objects at once, protecting the plants and manuring the ground the second year.

A gentleman of this neighborhood, who is engaged in the culture of silk, has suggested to us another plan for protecting them through the first winter, with which we are much pleased, both on account of its affording complete protection to the young plants, and the little labor and expense attending it. It is to sow the seed in troughs, or long boxes, which may easily be carried into a cellar and kept through the winter. Take three rough boards of about six inches in width, and of lengths to accommodate the dimensions of the cellar into which they are placed, and nail them together in form of a box with a bottom and sides, and at each end nail a piece of board of the same width. You have now a long box, which may be filled with suitable earth, and the seed sown in the usual manner. These boxes may be sunk in the ground to promote moisture, or left upon its surface, and weeded and watered as occasion may require. Before severe frosts they should be carried into the cellar to remain through the winter.

In the spring a furrow may be ploughed in the land, where it is intended they shall stand, and the boxes of plants taken from the cellar and placed in it. The nails may be drawn out, and for which purpose the heads should be left out a little, and the box taken to pieces and removed. The earth may then be drawn up to the plants with a hoe, and they are in the same situation they would have been had they have been originally planted in the common manner.

The plan is a new one, and has never, to our knowledge, been tested by the experiment, and as it looks feasible we hope some of our nurserymen will give it a trial.—[Culturist.]

INTERESTING FACTS.

A few years since a farmer purchased a farm in the town of Mansfield, on which were standing twelve mulberry trees of full growth. Not being accustomed to the business of making silk, he supposed them to be of no more than the ordinary value of forest trees for fuel. A neighbor, however, soon called upon him, and agreed to pay him twelve dollars annually, for the privilege of picking the leaves. The farmer, to his astonishment, found that the twelve mulberry trees were as good to him as $200, at six per cent. interest.—[Silk Culturist.]

PROFITS OF THE SILK BUSINESS.

It is contrary to my original intention, to occupy the pages of the "Silkworm" with any thing but original matter, unless it should be some extract which contains the very information wanted, and in the same succinct and concise manner in which I intend to write it; but I am induced by circumstances to deviate a little in this number from the proposed track; and I appeal to the reader's candor to pardon me, or not, after reading the following extract from an article in the "Farmer and Gardener," printed at Baltimore. The whole article, which occupies about seven large quarto columns, would awaken the most exquisite sensations in any person of taste, who should read it, as most every thing which comes from the pen of its author; but I am compelled to omit that part of it which is foreign to my subject. After a heart-piercing appeal to his country of the eastern shore of Maryland, who are emigrating to the west in throngs, because they have worn out their farms by bad husbandry, he informs them not only how they may fertilize their farms to any extent, but how they may enrich themselves, by cultivating silk, on which subject he says:

But there is another *field* open to those who desire to remain—a *field* rich in promise, and which should gratify even the most exorbitant thirst for the accumulation of wealth. We allude to the SILK CULTURE—a business which, if well conducted, is calculated of itself to make every owner of a small farm *comfortable*, each holder of a large one *rich*—we use both terms in their broad and most ample sense. As we have before remarked, by the adoption of this as a branch of husbandry, those very worn-out fields—which are now driving the people of New-Jersey, Maryland, Virginia, North Carolina, and South Carolina, to seek homes among strangers, and encounter all the hardships and privations incident to new and border settlements—may be converted into so many mines of wealth. We ask no man to go into it as an exclusive business—we desire no one to risk the support of his family upon it; but we do ask—we do *conjure* every one, who still clings with affection to his first home—to his birth-place—to engage in it as a *part* of his business. Let those who can afford to *buy the trees* from the various nurseries in our country, *buy them and commence the work*, so that the influence of their example may be felt and followed. Let those who cannot afford to make an outlay for the *trees*, buy one, two, three, or four ounces of the Morus alba*—the white or Italian mulberry—and begin the raising of the trees for themselves. Let those who cannot spare a larger quantity of land than *one* acre, appropriate *that* to the culture of the mulberry, and let each, according to his ability, set in mulberry, whatever number of acres, which, to him, may seem fit and proper, from the number named to *fifty*, either in hedges or standard trees, and we pledge ourself, that if those plantations of the mulberry be nurtured with care, and turned to the advantage of which they are susceptible, the necessity for emigration will cease to exist in any of the middle or southern states,—there is not an acre of those very lands about to be deserted, that may not thus, in silk culture, be made to produce more than twice as much in value as any western or south-western lands which might be procured, if cultivated in the present staples of those states. Why then go beyond the boundary of domestic comfort in search of the land which abounds in the elements of wealth, when *that land* is at your own door, if you but improve the resources which God has placed within your reach? Let us test it by the results of experience. An acre of mulberry trees, full grown, will feed 540,000 worms, and these, as 3,000 cocoons are equal to a pound of silk, will make, if properly attended to, 180 lbs., which

* We recommend the Morus alba, not that we would not give the preference to the Morus multicaulis, if it could be obtained in sufficient quantities to make its introduction general. We believe it very far superior to all other kinds of the mulberry tribe; but we are not certain, though we could wish to believe otherwise, that, for some years at least, we shall have to depend chiefly upon the first named for a supply of food for the silkworm, and, indeed, perhaps until the trees of the latter are sufficiently aged to produce seed. The Italians have for centuries made a most beautiful rich and glossy silk from it; we see no possible reason why we cannot do so likewise, and we are for going to work with that which is at present attainable, in preference to waiting for hopes that may never be realized. We know that the Italian mulberry withstands our climate—we know the worm eats it kindly,—and we know it makes good silk, and that should suffice.

when reeled, at the very *lowest* calculation, would be worth $4 per lb., equal to $720. Now let us see what would be the expense attending the feeding of the worms. The experience of Europe, as well as that of our own country, shows that two persons are competent to feed one million of worms the first week, four the second, eight the third, and from sixteen to twenty the remainder of the time, which, for the sake of data, we will set down at two weeks more. This, we wish it recollected, is the calculation of the number of hands requisite to attend to 1,000,000 worms, but as we wish, in all charges against the culture, to be rather over than under the amount, we shall tax the 540,000 worms with the expense of almost twice that number for attendants. And now let us see how the account will stand.

One Acre in Silk Culture, in account with A. B.	*Dr.*
Interest on 1 acre land, value at $20, at 6 per cent.,	$1 20
Interest on laboratory, valued at $500, at 6 per ct.,	30 00
Hire of 2 men 5 weeks at $6 per month each,	15 00
Their board at $1½ per week,	15 00
Hire of 2 women 4 weeks, at $3 per month,	6 00
Their board at $1½ per week,	12 00
Hire of 4 women 3 weeks, at $3 per week,	9 00
Their board at $1½ per week,	18 00
Hire of 12 children from 7 to 14 years old, 2 weeks, at $1 per week,	24 00
Their board at $1 per week,	24 00
Reeling,	150 00
	$304 20

One Acre in Silk Culture, in account with A. B.	*Cr.*
By 180 lbs. of Silk at $4 per lb.,	$720 00

By balance or clear profit on 1 acre in the silk culture, $415 80

Here then we have as the clear profit resulting from an acre of ground in the silk culture, after making the most liberal allowances for all possible charges accruing—after allowing $20 for an acre of worn out land, which in many cases would not bring one fourth of that sum, and but seldom more than a moiety, after taxing *one* acre with nearly the expenses of labor for *two*, and after putting the silk at the *lowest* or minimum value—we say, after dealing thus hardly with the produce, we have a *clear profit* on 1 acre thus appropriated of $565.80. This calculation allows 3,000 cocoons to make 1 lb. of reeled silk, whereas the experiment of Mr. Elias Frost, of Plainfield, Massachusetts, proved that 1243 yielded him 7¾ ounces of silk, when reeled, being rather better than 18½ ounces of silk to 3,000 worms; or of 1 pound to a fraction less than 2,527 worms. This experiment was upon a small scale, it may be said —granted, it was upon a small scale—but by due vigilance, unceasing vigilance, and a proportionate increase of attendants, the same result might be realized to the extent of many acres. We do not wish to conceal the fact from the agricultural community, that those who enter into the silk business must imitate the worm in its toils. He who expects without exertion during their feeding, to realize profit from their labors, had better not engage in it. But if he will give during the very limited period of their probation here—say five weeks—*due vigilance*, he will, indeed, reap a harvest worthy of his garner.

The calculation of food for the worms is based upon the production of 108 full grown trees, placed on an acre, 20 square feet apart; but the same, or a greater quantity of leaves, might be raised on an acre of land planted in hedges six feet apart, the fourth year after sowing the seed, if the seedlings were pushed ahead by manuring and clean cultivation.

We have spoken of worn-out lands being adapted to the culture of the mulberry tree, and we repeat that the experience of Europe shows that thin sandy or gravelly lands yield a nutriment which produces the finest, most elastic, and glossy silk; but here we would not be understood as wishing to recommend that the mulberry plant be confided to poor worn-out lands without their being first liberally manured; and whether planted in standard trees, or in hedges, the soil should, most assuredly, be kept in a state of generous tilth for the first four years, by cultivation. Clover between the rows, to be well plastered, and a lay turned in twice during that time, taking care to keep the young plants or trees free from the obtrusion of grass or weeds, would be sufficient to ensure their subsequent growth. *Potatoes* or other *roots*, as *parsnips*, *mangle wurtzel*, *carrots*, or *beets*, might also be raised between the standard or hedge rows, so that, while the mulberry was maturing, the ground appropriated to their culture could be made to more than repay for all expense attending it. Thus would the bug-bear of having "to wait so long" be stript of its hideousness.

A few words more and we will bring this article to a close. How shall the good work be begun? There are various ways by which it might be. *Individuals* may, and we hope will, begin it. In the eastern states, it has already been laid hold of in every possible form,—*societies*, *companies*, and *individuals*, are there already exerting their respective capacities to give it motion. In Connecticut alone, *four county societies* have been specially formed for furthering its culture, since the 1st of March last, and almost daily we see notices of new companies about being formed. These things are as they should be, and we would appeal to the pride of the middle and southern states, whose soil and climate are so much better suited to the culture of the mulberry, not to let our eastern and northern brethren outstrip us in this lucrative branch of husbandry, but rather join with them in the generous rivalry of brothers, for the palm of victory. And may we not here ask every agriculturist living in those states immediately interested, to step forward to the rescue. In a business which equally concerns all, none should indulge in indifference of feeling. What we ask, therefore, is, that some gentlemen in each neighborhood will take an active part, and give an "impetus to the ball of the revolution"—it needs but a beginning, and he who shall be foremost in this glorious work of regeneration, will deserve to live in the fondest recollections of his countrymen. The organization of societies for agricultural purposes, wherever they have been formed, have conferred blessings, and we enjoin it upon those who possess influence to exert it *now*; for *now* is the time when their country needs it.

AMERICAN SILK IN 1791.

We have in our possession several samples of beautiful changeable silk made in Berlin, in this State, in the year 1791, by Mrs. Elisham Brandegee—they are taken from dresses now in the family of Mr. Brandegee, who says that he helped pick the leaves to feed the worms, and the silk was reeled by his mother, and wove in that place. The fabric is very even and the surface smooth and lustrous; the colors are bright and fast. The sample of one dress is wove of red and black, and was intended for a present to the lady of Gen. Washington, but, for some cause not remembered, was never presented.—[Culturist.]

PRESERVING EGGS.

The cocoons selected for seed should be firm and of the largest size. After having stripped the floss from them, they should be strung together and hung up in a warm airy room or chamber, partially darkened. In about two weeks from winding, the moths will emerge from two cocoons. The male is known by its smaller size and continual fluttering of its wings; after having been paired and remained together during the day, they should be separated by the wings, and the females placed upon sheets of paper, where they will deposit their eggs. It is computed that one hundred females will produce one ounce of eggs, and an ounce of eggs will produce forty thousand silk-worms. The papers on which the eggs are deposited should be rolled up and put in tight boxes and placed in a cool dry cellar where they will not freeze. If it is required to keep them late in the season for a second crop, it may be necessary to have recourse to the ice house.

[From the Genesee Farmer of Aug. 29.]

CULTURE OF WHEAT.—As this is considered the most important crop to which the farmer can direct his attention, it is at the same time one of the most difficult to cultivate with uniform success. Different and even opposite courses must be pursued under different circumstances, in order to obtain the same desirable result—a good crop; difference of soil—difference of climate—difference in the time of sowing—and difference in the variety of seed, all frequently require material variations in the mode of culture, rendering the business of raising wheat one of the most complex of all the branches of agricultural practice.

In offering a few remarks upon the cultivation of this very important crop, we propose principally to point out that course which practice has shown to be most uniformly attended with success; and we indulge the hope, that by placing, at the present time, these facts and instructions concisely before the farmer, he may not only be enabled the more effectually to put his previous knowledge into operation, but also to derive new and useful hints from the experience of others.

Soil and preparation.—In preparing the soil for many other crops, it is rare that much caution or skill is necessary; for instance, corn requires high manuring and a rich soil, and it is scarcely possible to carry this to excess. But with wheat the case is otherwise; land naturally very rich, or highly manured, is apt to cause, during the hot season of summer, a too rapid growth of straw, at the expense of the seed, and rust, lodging, and ultimate failure is frequently the consequence. This evil is increased to a far greater degree if strong unfermented manure is employed, which causes a still more luxuriant growth of stalks.* Unfermented or fresh manure should therefore never be applied to land intended immediately for wheat. But as a material loss would result from allowing manure to ferment in the open air, and thus waste a large part of its strength, it is always best, where practicable, to apply fresh manure to other crops which are to precede wheat. In this way the manure becomes well rotted and thoroughly incorporated with the soil by the time that wheat is sown upon it. Land may be highly manured by this course, without any bad effects; indeed, some of the best crops are obtained from ground enriched in this manner; instances of which may be often seen in places where large quantities of manure have been accidentally deposited in previous years, as by old stacks of hay, demolished buildings, &c., where grain is often three times more productive than on adjoining ground in the same field.

Deep ploughing.—When the above course of manuring is pursued, land is rarely made too rich for wheat, provided it be accompanied with deep ploughing. This is indeed highly important, especially in heavy fertile soils, such as constitute a large part of the land of western New-York. Nearly all who raise large crops on such soils have made use of deep ploughing in previous years. There are, however, some very shallow soils, where the subsoil will not admit of this practice; such of course must form exceptions; but these form but a small part of the land in this country.

Summer fallows and rotation of crops.—It is a point which appears to be generally conceded, that *rest* is of no use to land, and can never improve its quality while nothing grows upon it. Ground which is not employed in producing food for animals, should be occupied in preparing food for plants; or in other words, instead of lying naked, it should be producing some suitable crop to serve as a coat of manure to enrich itself. The practice of summer fallowing, therefore, can only be of use in destroying weeds with which land may have become infested, and in pulverizing and mixing soils of a heavy adhesive nature. In other cases the practice should never be resorted to; for although it generally is followed by good crops, yet these are produced at such expense, as to render it in the end much more unprofitable than a judicious rotation. For in addition to several expensive ploughings, the use of the land for nearly two years is appropriated to a single crop.

But one of the worst practices in husbandry, is that of raising successive crops of wheat on the same field. In this way land always must deteriorate, at the same time it becomes foul with chess and other weeds. In many parts of this state where this course has been practised, fields have been seen the present season with little else than chess growing upon them. It is true there are some farmers who have succeeded in raising a succession of good crops on one piece of ground, but such instances are comparatively very rare; and even where they exist, the practice should not be continued. For it has been proved by repeated experiments, that where the same crop is taken year after year from a piece of land, it becomes, sooner or later, exhausted of its specific food for that crop—in some instances this speedily takes place, in others it requires a long series of years, but in all cases it is the inevitable consequence. Instances of soils thus worn out are not wanting in the older settled parts of this country, which were once remarkable for their fertility, but which now afford crops scarcely worth raising. And it may be regarded as a universal rule, that lands, once capable of producing good crops, and afterwards losing this quality, are brought to that state by improper cultivation—by a too frequent succession of exhausting crops, instead of a constant change from one crop to another, from crops of as different nature from each other as possible, and changes from tillage to seeding with grass, and from grass again to tillage.

Peas, beans, and clover, are among the best crops to precede wheat, as they are very different in their nature from it, and consequently afford a greater change in the succession. Clover in particular possesses several advantages: its roots loosen the soil, it furnishes excellent manure when ploughed under, and unlike the natural grasses, does not form so tough a sod as to require summer fallowing in order to break and pulverize it.

Best sorts of seed.—In favorable seasons, and on good ground, the red chaff bald wheat is generally to be preferred, as affording the largest and best product; but as the white flint is a hardier plant, and more capable of withstanding the vicissitudes of seasons, there is more certainty of its producing a uniform crop; it is more especially to be preferred on wet soils, or where wheat is liable to be winter killed, or otherwise suffer from unfavorable causes. On soils of unequal nature, or where the uncertainty of the coming season renders it impossible to know what variety may be best adapted, it has sometimes been found useful to mix seed of opposite properties, such as flint and red chaff, so that where one does not succeed, the other may take its place. The crate wheat, and some other of the bearded varieties, produce good crops, but are not perhaps equal in all respects to those above mentioned.

It is not only important to obtain the best varieties, but also to use the finest and largest seed which can be procured of such varieties.

Change of seed.—There is also a great advantage in a change of seed from different climates, and from soils of an opposite nature, if the quality be otherwise equally good. Certain varieties, if cultivated for a long succession of years on the same spot, gradually change in their nature and quality, according to the nature of the climate and soil. If this change is such as in any

* It is an established law in vegetable economy, that an extraordinary growth of the stem and leaves is always at the expense of the fruit or seed. Hence fruit trees rarely bear while in a very thrifty state, but require first to be checked in their growth in order to produce fruit. Now, as it is during the heat of summer, a season when vegetation advances most rapidly, that wheat matures its seed, it is more liable, on this account, to suffer from too vigorous a growth, than other plants which ripen their seed later in the season, such as Indian corn.

Another evil of a luxuriant growth is the liability to be beaten down by storms; and this is frequently felt even where the rapidity of the growth would not be such as to prevent the maturity of the seed. But that this evil is not a necessary consequence of vigorous vegetation, is proved by the fact that some of the largest crops ever cultivated have completely withstood wind and rains; and also by the fact that grain is not always beaten down where heaviest on the field. What course is requisite to prevent this evil, without diminishing the crop, requires further investigation.

An experiment given in the American Farmer, vol. 15, p. 265, may serve to throw some light upon this subject. Two pieces of ground precisely similar in quality and aspect, were sown with wheat: one was sown broadcast, and the other in rows, in the following way:—The land was ploughed as usual, but instead of being harrowed, the wheat was sown immediately after ploughing, by which nearly all the seed fell into the furrows, very little remaining on the ridges. The field was harrowed, not crosswise, but in the same direction as it was ploughed. The last operation cast the seed almost entirely into the furrows, at the same time covering it, so that the wheat stood when it came up almost as completely in rows as if planted in drills. This field of wheat succeeded perfectly, and the grain remained erect; while that on the adjoining field which had been sown broadcast, was beaten to the ground.

This result was explained as follows: In the field sown broadcast, the grain stood close, and prevented the circulation of the air; consequently the stalks, deprived of its influence, and the action of light, remained soft and tender, and unable to support their weight; but the case being different in the other field, the stalks became firm and hardened. "Plant one grain of wheat," says Nicholson, "in the richest soil, and the stalk when grown will not fall; but plant many in the same soil, so closely together as to preclude the free circulation of the air among the stalks, and they become unable to support their own weight."

particular to lessen its value, the seed should be changed by substituting that which grew where such change is not produced. An instance may serve to illustrate this: "In some mountainous countries," says Professor Brown, "in Scotland, for example, they bring the seed from the low country and from the plains, where the climate is more mild, and consequently the seed more forward, a quality which it always preserves for many generations. We are convinced that the cultivator of this mountainous district, if he always used seed from his own crops, would reap later and later harvests, so that at last perhaps they would not come to perfect maturity; a circumstance easily explained by the short duration of the summers in the mountains. If, on the other hand, the cultivator of a flat country, the climate of which is mild, and the soil dry and light, continually made use of his own seed, it would head every year sooner, the stalks would become shorter, and the heads and grain smaller and smaller, and in time there would result but a poor produce. In this last case, the cultivator brings his seed with advantage from a country more cold, the soil of which is good and substantial."

The quantity of seed per acre, should be from five pecks to two bushels. It should vary with the time of sowing, and with the size of the grain. Late requires more than early sowing; and large and full seed should be in greater quantity than that which is small, in order to compensate for the less number contained in a bushel.

To prevent winter killing.—Winter killing is caused by the heaving of the soil by frost, generally during the severe nights in the latter part of winter, after the covering of snow has melted from the ground. This breaks the roots, and the plants, as soon as the dry weather of spring comes on, wither and die from the want of nourishment and moisture. The freezing of the large quantity of water with which the ground is saturated early in spring, proves particularly destructive to wheat. Hence the great importance of thorough draining, both by surface channels and by covered ditches. Superficial furrows should not only be cut through the field wherever they may be needed, to carry off what may fall upon it; but also at its upper sides, to prevent the water from contiguous fields from flowing upon it. Covered drains should be from two to three feet deep, and three or four rods apart, where the object is to drain off the water which rests in the soil on low wet land. Where undergronnd streams are to be cut off, the depth, course, and distance asunder, must be suited to circumstances, which nothing but an examination on the spot can determine. The great profit of draining has been proved by some farmers in the western part of this state, who have by a thorough course rendered low, heavy, and rich land, which formerly was wholly unfit for wheat, on account of its wetness, now capable of yielding from thirty to forty bushels to the acre; and in some cases almost repaying, in a single year, the whole expense of the work.

Manuring often on certain soils prevents wheat being winter killed. Thus poor and heavy land, where crops are liable to this injury, may be greatly improved in this respect by manure; as is proved by the fact, often witnessed, that such parts of fields as have been well manured produce abundantly, while other parts unmanured are left bare by the action of the winter frosts.

Another mode of preventing winter killing is to cover the surface of the ground with a coating of straw. When this is employed, it should be spread upon the surface after sowing, and just before the wheat comes up; or else in the winter, (or when the danger is to be apprehended,) and removed again with a horse rake as early in the spring as the weather will admit.

Sowing early in autumn has also a tendency to prevent winter killing, by affording the roots time to attain strength sufficient to resist the action of the frost. But as wheat sown early is more liable to attacks of the Hessian fly, farmers must exercise their discretion as to the time of sowing. As a general rule, where the principal loss is to be apprehended from winter killing, wheat should be sown early; but when the Hessian fly is considered the most formidable evil, sowing a few weeks later is recommended as best.

Importance of further experiments.—Notwithstanding the great improvements in agriculture, the art of cultivating this important crop may yet be considered in its infancy. The average product of wheat throughout all parts of the world, has been estimated not to exceed six bushels reaped for one sown. But that this amount might be greatly increased none can doubt. The enormous crops which are sometimes raised in this country teach us what may be done under favorable circumstances. Take, for instance, the account of the crop raised in 1816 in Springfield, Mass., on *four acres* of land, the product of which was *two hundred bushels*, or fifty bushels to the acre;* also that raised in 1833 by Jirah Blackmer, of Wheatland, Monroe county, who obtained the premium of the Agricultural Society, for a crop of *sixty-eight bushels and forty-three pounds* on a single acre.† Now the great point to be determined is to know what are the essential requisites of a good crop; and to be able to distinguish these from accidental circumstances not connected with success. It is therefore important that numerous experiments should be made; and above all, that every one who is successful in raising great crops of this grain, should publish a particular account of his method, describing as accurately as possible the nature of the soil, the quantity and kind of seed, the condition and preparation of the land, the mode and kind of manuring, and, in short, a minute description of the whole course of culture. Even a slight improvement, if generally adopted in the Genesee country alone, would be of the value of many thousand dollars annually; every new fact or suggestion should therefore receive all the attention which its importance demands.

* The account of this crop given in the Massachusetts Agricultural Repository, is as follows: The land, (a meadow,) was manured, ploughed, and planted with Indian corn the first year—the crop was abundant. The next year it was covered with very rich manure, and sown with hemp. The crop was large and heavy. The land was then ploughed twice and sowed with bald wheat, one bushel and three quarts to the acre. The produce was two hundred bushels of good, clean, heavy wheat, from the four acres. About half an acre of the hemp was not pulled until the seed was ripe, by which the sowing of the wheat was delayed too late in the season, and the crop was diminished in consequence on that part, six or eight bushels, as supposed.

† For a description of the culture of this crop, see Gen. Far. vol. 4, page 105.

[From the Genesee Farmer.]

Paul says, "Do good, and to communicate forget not."

Preservation of Straw. — Mr. Tucker: The time for threshing grain having arrived, I will give you a statement of my manner of saving and feeding straw, agreeably to your request in the 5th number of the current volume of the Farmer. Previous to commencing threshing, I go to a hay stack, and twist a quantity of bands, from 6 to 10 feet long, which are placed at the barn door, and when the straw is raked to the door, two men take a band and stretch it over the bundle of straw, then run each a hand under the straw and turn it over endwise on to the band, when one of them fastens the band, and the other prepares another band; and in that manner two men will bind as fast as the swiftest machine will thresh, and the straw is stacked as securely as wheat, and in one-fourth the time required when not bound, and the foddering is performed with much less labor; and if cut, (as it should be,) that operation is much facilitated. When my stock comes to the yard, I commence foddering my straw, and do not allow them to taste a lock of hay until the straw is entirely gone. The cause of the failure of so many in feeding straw, is their fears that the cattle will starve, and they give them a good foddering of hay once a day, which entirely prevents their eating straw; and as the hay is not sufficient to keep them in heart, the cattle of course become poor, and it is charged to the straw. I repeat, they must not taste a lock of hay, neither must they be compelled to eat the straw clean, as a good bed is essential to their good condition. I shall cut my straw the coming winter, and feed in mangers. Lambs and yearling sheep will not do well on straw uncut.

Crops in Onondaga County. — Rather than send a sheet half filled, I will fill it with matters and things in general, from which you may select such (if any there are) as will be interesting to your readers. The wheat harvest in this county is finished, and is not more than two-thirds an average crop. Barley is a heavy crop, and secured in fine condition. Grass is more than average crop in this section of the county. Corn is backward, and cannot be more than half of a fair crop. Potatoes look well, and if we do not get an early frost to kill them, will be a middling yield. Oats are very good.

Bees.—A subscriber in Onondaga says his *bees*, kept in a long box after the plan of Ulmus, have sent out swarms as usual. I put a swarm in a room in my garret three years since—they have not sent out any swarms, but filled the box about half full of honey, and then commenced work-

ing on the outside of the hive, for which I infer the plan of racks is better than hives. I took some honey from the room a few days since, which so enraged the bees, that for some time they gave us no peace. I am satisfied it is not good policy to disturb them during the working season. They had always been peaceable enough until I disturbed them.

Canada Thistles.—I planted two acres in potatoes in 1834, which were entirely covered with Canada thistles, and cut the thistles over once in 8 or 10 days through the season, which nearly destroyed the thistles, and yielded a fair profit on the labor. They should have been hoed this season with corn. I remain, respectfully, your obedient servant, S. P. R.

Skaneateles, Onondaga co., Aug. 22, 1835.

[From the Farmers' Register.]

GYPSUM NOT INJURED AS MANURE BY BEING HEATED. — Impressed with the justness of a remark of yours, that "information obtained from statements in detail of agricultural experiments, is far more satisfactory to the attentive and laborious inquirer, than a mere report of the general opinions of the experimenter," and in accordance with that spirit, I now offer you a brief account of an experiment, which perhaps may not be uninteresting.

In the spring of 1834, intending to plaster a lot of orchard grass, I ordered a few barrels of gypsum from Charleston. As I had before found the process of pulverizing the stone rather troublesome, I requested my factor to purchase the gypsum already ground into powder. When the gypsum arrived, I was astonished at the high price it had cost me, to wit, six dollars per barrel; but not suspecting the judgment of my factor as to the quality of the article, I made no examination of it myself, but placed it entirely to the account of imposition. In June I had it spread over the grass at the rate of one bushel per acre. The very next day after having spread it, a plasterer, who, it seems, had previously examined the plaster, called on me to ask the favor, as the article was not to be had in the Columbia market, of a barrel of it, to finish a job of stucco-work in which he was then engaged. I told him there was still a barrel on hand which he might have, but that it was raw gypsum, and that he would have to put it through the process called "boiling," before he could use it. He replied that it had already gone through that process, and was excellent plaster for his work. I denied the fact, as I had bought it for simply ground gypsum. He, however, instantly undeceived me, and convinced me, by working a little of it into plaster, that he was right; upon which he took the barrel, with which he finished his job of stucco-work.

As I had never seen any account of the application of gypsum in aid of vegetation that had undergone the process of heating, it at once occurred to me that I had probably destroyed my lot of grass. Reflecting a moment, however, upon the effect of heat upon gypsum, it was obvious that it had undergone no essential change in its component principles, except the expulsion of the water of composition. It was still the sulphate of lime in a more concentraed and condensed state; and as in this state its avidity for water is so prodigiously great, I concluded the first rain, or perhaps the dews, would soon saturate it, and re-convert it into its natural state of gypsum; and, therefore, I could not conceive how it could injure the grass, unless from an over-dose of gypsum in consequence of its greater strength to the bushel, of which I felt but little apprehension. In a few days afterwards, upon receiving one of the numbers of your Register, I was gratified to find you had opened a discussion upon the same subject, the first which I had ever seen; and so far, in the absence of any experiment, the same conclusion had been arrived at by yourself.

My accidental experiment, however, I think goes far towards settling the question. The grass never showed any signs of unhealthiness, or suffered in any way for a moment; but on the contrary, from the manner it sustained one of the severest droughts ever witnessed in August, and again the unparalleled cold of the last winter, and the manner in which it has subsequently flourished, and retained its verdure, I am satisfied the mistake was all in favor of the grass. I had applied gypsum to a part of the same lot in June of the year preceding. The benefits were very manifest, but not equal to those from the last plastering. In 1832, I applied it at the rate of about one bushel per acre of unheated gypsum, and it was my intention to apply only one bushel per acre in 1834; but by the mistake, as gypsum contains 22 per cent. of water, which had been driven off, I of course applied what was equal to one bushel and nearly a quarter of the unheated article; which the result has shown was not too much.

The great objection then to the application of gypsum that has undergone the process of heating, as a fertilizing substance, consists in the expense, and not in any deleterious or impaired qualities of it—which expense at the rate I paid, was far too great. The heated plaster cost me about two dollars per bushel, whilst I never paid higher than ten dollars per ton in Charlston for the gypsum in stone, and have bought it as low as seven dollars.

J. D.

P. S.—As it is satisfactory, and generally useful to know all the circumstances attending an experiment, I will mention that the lot on which my grass grows is new land, on a ridge of pretty good soil, with a growth of oak and hickory, in Fairfield District. It is what we call clay soil, mixed with a good deal of feldspar stones; but sufficiently silicious to be easy of cultivation. It is shaded by the natural growth of lofty oaks, &c., left standing about 50 and 60 feet apart. It has had no manure except two annual supplies of cotton seed, separated at the rate of two wagon loads (45 bushels each) to the acre. The grass is flourishing and profitable.

J. D.

Fairfield District, S. C., July 11, 1835.

SONG OF THE BEES.

We watch for the light of the morn to break,
And color the eastern sky
With its blended hues of saffron and lake,
Then say to each other, "Awake! awake!
For our winter's honey is all to make,
And our bread for a long supply."
And off we hie to the hill and dell,
To the field, to the meadow and bower,
We love in Columbine's horn to dwell,
To dip in the lily with snow-white bell,
To search the balm in its odorous cell,
The mint and the rosemary flower.

We seek the bloom of the eglantine,
Of the painted thistle and brier,
And follow the steps of the wandering vine,
Whether it trail on the earth supine,
Or round the aspiring tree top twine,
And reach for a state still higher.
While each on the good of his sisters bent
Is busy, and cares for all,
We hope for an evening with heart's content,
For the winter of life; without lament
That summer is gone, its hours misspent,
And the harvest past recal.

[From the Southern Agriculturist.]

RARE AND VALUABLE SEEDS AND STINGLESS BEES.—We introduce to our readers the promised letter of Henry Perrine, Esq., Consul at Campeche. It will be remembered that in our last number, we acknowledged the receipt from this gentleman, of a hive of stingless Bees; they have been committed to the care of one, whose public spirit will cause him to regard himself as the husbandman of the community in which he lives; he will second the patriotic efforts of the Consul at Campeche, in conferring upon us a gift so interesting. This has not been the first evidence of the liberal interest felt by Mr. Perrine, in promoting the introduction of valuable products from abroad; and if our motives were purely selfish, we still might very consistently wish, what we now offer in pure thankfulness, a renewal of his health, and of his public office in some other quarter of the globe.

"Consulate U. S. A.
Campeche, June 18th, 1835.

To the Editor of the Southern Agriculturist:

Sir,—Although on the eve of my return to the United States, yet as the schooner Carolina Brutus, now returning to Charleston, is the only vessel which, during eight years, has afforded a direct communication between this port and yours, I avail myself of the few minutes allowed me to send you a few products of this peninsula.

I name first, a paper of the beans, which produce the root here, called Jicama (Dolichus bulboses?) as the success of Mr. Skinner, in Baltimore, justifies the belief that in your latitude it will flourish and become a valuable addition to your horticultural, or even agricultural resources. Next you will find a paper of the four-winged pods of another leguminous plant, which rapidly grows into very ornamental trees (Piscidia Campechana,) whose wood (here called Habi) is as highly prized for ship building in Campeche, as is the live oak in the United States, or the teak in the East Indies: and has the much greater merit than both, inasmuch as he who plants the seed may profitably cut the timber. I also send a small quantity of nankin colored, and of kidney shaped seed cotton, which will speak for themselves in a cotton

growing country like South Carolina. Last, and greatest in my estimation, are the samples of the *foliaceous fibres* of Yucatan and of Goazacoalcos, (the coarse called Henequen, and the fine called Pita in the ports of Mexico) and of the leaves of the Agave, and of the Bromelia, from which they are extracted. Your own Elliot, in his Botany of South Carolina, long since anticipated the cultivable value of the foliaceous fibres of your indigenous Yucca filamentosa. I have not the time to give even an epitome of the relative advantages of the Agave Henequen and of the Bromelia Pita, for extensive cultivation in the most sterile districts of the south, the former in sunny plains and the latter in shady woods, where it absolutely usurps the place of the common worthless undergrowth. I still, however, persist in my conviction, that the production of foliaceous fibres in the most barren soils of the south, will be much more profitable than the cultivation of your present great staple of capsular fibres in the most fertile loams, and hope that during my travel after health this summer, I may take some active droselytes. By-the-bye, you must not mistake the present samples of the fibrous leaves to be good ones, as in truth, they are the refuse of a number collected two years ago, which have been tossed about in the dust.

While writing the above, an Indian has returned with the hive of stingless Bees, which I feared would not arrive in time for Captain Kerrison, who is hurrying me to conclude this unpremeditated epistle.

Very respectfullly, your ob't serv't,
HENRY PERRINE."

The seeds mentioned, we will distribute among our friends who wish to attempt their cultivation. The Piscidia Campechana, we presume is the same as P. Carthageniensis, a variety of the Jamaica Dogwood, the generic name is derived from its power to intoxicate fish. It is said that the fibres of our Yucca filamentosa, are the strongest of any known plant. It is familiarly known as the silk root with which woollens are washed, but is not applied by us to any other use. We should suppose that it must surrender its pretensions as a fibrous plant of value, to the Bromelia sent by Mr. Perrine. The specimen of this, at our office, is well worth examination, and is by far the most interesting of the plants he mentions. His description of the locality in which it delights, will at once bring to mind the extensive body of pine land in Georgia, which spreads from the sea shore over half of the State, now infested with endless tracts of stunted palmetto. How can this have escaped the attention of Mr. Spalding, of Sapello? His name is connected with the first culture of many of our staples, and this is a new opportunity of identifying him with the prosperity of Georgia.—[Ed. So. Agr.]

From the Farmer and Mechanic.]

TO DYE WOOLLENS.—Last September I was at the exhibition in Burlington, Kentucky, and was much pleased at the spirit shown by the ladies of that neighborhood, in manufacturing so many excellent articles of domestic manufacture for exhibition. For this they deserve great credit; but I observed that in many articles, particularly the carpeting, that though the spinning and weaving were well done, in most of them the coloring was deficient, which I attribute to their not having proper instruction in that branch of the business, and have therefore made out the following directions for dying, and I hope you will publish it for their benefit, viz:

Woollen yarn may be dyed yellow by boiling it for an hour with about one-sixth of its weight in alum, dissolved in a sufficient quantity of water, then plunging it, without being rinsed, in a bath previously prepared, by boiling black oak bark, (as ground for tanners,) in water; the yarn is to be boiled in this, and turned until it has acquired the wished-for shade; the oak bark should be strained out of the liquid. It would be of considerable advantage to add one ounce of cream of tartar to each pound of alum used. After the yarn is dyed it should be well washed in several changes of water.

Woollens may be dyed blue by dissolving one ounce of good indigo in four ounces of oil of vitriol (sulphuric acid.) This must be done in a glass or stone vessel, powdering the indigo before it is mixed with the vitriol; to the solution one ounce of dry pearl-ash is to be added. The yarn must be boiled in a sufficient quantity of water with one ounce of alum, and one ounce of cream tartar, to every six pounds of yarn; the boiling to continue at least one hour; it is then to be thrown, without rinsing, into a water bath containing a greater or smaller quantity of dissolved indigo, according to the shade wished for. In this bath it must be boiled, until it has acquired the color, and then washed.

Green can be dyed by adding as much of the dissolved indigo to the bark bath, prepared for yellow, as with the proper shade. The cloth having been boiled with alum and tartar, as directed for yellow, is to be put into the mixture, and the same method pursued as directed for dying that color. I would observe that there are many methods of dying blue, many of them practically known in the families of most farmers, and therefore will probably be preferred by them, but this method is most certain and most convenient for obtaining a fine green.

A good red may be obtained by boiling Nicaragua wood in water until the color is extracted, and then straining the liquor; the yarn having been prepared in alum water as previously directed, is to be boiled in it in the same manner as directed for other colors. Different shades may be produced by adding a little copperas.

Wool may be dyed black by the following method—first prepare a bath by boiling one pound of black oak bark, to every ten pounds of yarn, in a sufficient quantity of water. In this bath the wool is to be boiled for two hours, it is to be put into a bath composed of three-fourths of a pound of copperas, and two pounds of logwood, for every ten pounds of yarn, and a sufficient quantity of water; in this it must be kept for two hours more, at a scalding heat, frequently taking it out and exposing it to the air during the operation.

A MECHANIC.

On the Obstruction of Cast Iron Water Pipes, by the formation of Nodules of Oxide of Iron within them. By M. PAYEN.

[Translated for the Journal of the Franklin Institute, by Jos. Wharton, at the request of the Committee on Publications.]

A singular effect has been lately observed to take place by use in cast iron water pipes, in certain cities. The passage of the water becomes gradually obstructed, by the formation of nodules of impure oxide of iron, of a light brown or greenish color, which adhere to the internal surfaces of the pipes.

This subject being one of the greatest importance in connection with the health of cities, and the agriculture of various districts, required an elaborate investigation, which I undertook, and of the results of which the following is a succinct account.

All soluble substances that give an alkaline reaction to water, such as potassa, soda, ammonia, and lime, the carbonates of potassa, of soda, and of ammonia, the borate of soda, and the sub-acetate of lead, are capable of preventing the oxidation of iron.

The relative proportions of these substances, and of the water, required to produce the effect, varies with the alkaline agent employed, and is also affected by the presence of certain foreign salts; the alkaline agents being the same, the nature and quantity of these salts determine the proportions.

When the quantity of alkaline matter is insufficient, oxidation ensues; but it is remarkable that all the points of the surface are not, in this case, equally oxidized, so that the nodular form of the concretions must be assumed from the beginning. The preserving force is overcome only in places where the continuity of the surface has been interrupted, even although it be by an almost imperceptible division. Thus, for instance, the lines on fibrous iron, and the points where the parts of the iron are separated by foreign bodies, are oftentimes pointed out by traces of greenish oxide, which gradually fill up, while the rest of the surface preserves, for a long time, its metallic aspect; and hence the advantage of an iron as *mechanically* pure as possible. The points of contact between a connecting pipe, and the sides of a main, or between two pipes, are likewise sufficient to determine the effect.

The following are a few experiments upon these points.

A cylinder of polished iron, immersed in a saturated solution of pure potassa, diluted with 1000 times its volume of water, (the temperature being 59° Fahr.) was preserved untarnished for a long time; but as the carbonic acid of the air gradually weakened the intensity of the alkaline action, signs of oxidation began

to exhibit themselves at various points, and became more and more apparent, while the greater part of the surface preserved its lustre after the lapse of a year.

Conical concretions of oxide were gradually formed on the surface of an iron cylinder, when the latter was immersed in water containing 0.02 parts of its volume of a saturated solution of carbonate of soda. The color of these concretions was a greenish brown, which acquired a yellowish cast at their summits, while the base in contact with the metal retained its original greenish brown color. The liquid was not protected from the air.

The same saturated solution being used, but diluted with fifty-nine parts of water, and kept for a year, in an open tube, in contact with polished cylinders of iron, greenish concretions were first formed, which slowly passed round the cylinders, and gradually assumed a beautiful yellow tint, whilst the rest of the surface, even of that part which, by the evaporation of the liquid, was uncovered, preserved its metallic state. In the same circumstances, the iron has been completely preserved from oxidation in water containing 0.023 of a saturated solution of carbonate of soda.

In a saturated solution of chloride of sodium,* protected from the air, there appeared, on the surface, and, it is to be particularly observed, *on the points of contact* between several bars of iron, only some protuberances of greenish oxide, the remainder of the surface preserving its metallic lustre after the lapse of a year. In a similar experiment made in contact with the air, the oxidation continued, and assumed the color of rust, beginning with the parts nearest the surface of the liquid.

A solution saturated with marine salt, and carbonate of soda, preserved iron entirely from oxidation, for the same space of time, notwithstanding the presence of atmospheric air, and a crystallization of a part of each of the two salts.

The same solution, diluted with nine volumes of water, afforded concretions of oxide.

In endeavoring to obtain, in accordance with the above experiment, the exact proportions of water, of chloride of sodium, and of carbonate of soda, the most favorable to the formation of local concretions of oxide, I found that a saturated solution of the two last, (the solution being made at the temperature of 59° Fahr.) diluted with seventy-five times its volume of water of the Seine, (see note 3,) and filtered, produced, in less than a minute, an oxidation both on wrought and cast iron. The effect was first shown by the appearance of points of a pale green; in ten minutes' time, the lines were well defined.†

When, in compliance with a suggestion of M. Becquerel, the power of electric conductibility was increased, by bringing, by means of a wire, a fragment of well calcined charcoal into contact with a polished bar of wrought or cast iron—the other circumstances being the same as in the preceding experiment—the greenish protuberances were developed still more rapidly, and in much greater number.

In weak alkaline solutions of the same substances, freed from atmospheric air, oxidation does not ensue.

In those containing atmospheric air, oxidation is arrested when the access of the exterior air is prevented.

When the air of the atmosphere has free access, the concretions nearest the surface pass into a higher state of oxidation, while the greenish oxidation continues, at other parts of the surface, on the points at which it began.*

The figure of the concretions is sometimes irregularly rounded, sometimes conical, and, at times, variously ramified into winding bands.

Bars of wrought and cast iron, polished, which have been, for the last four days, immersed in water, that had previously stood in contact with a portion of white marble, in the form of a well washed powder, already exhibit, near the surface of the liquid, points of a greenish oxidation, and rust in a floculent state.

The following conclusions may be drawn from the preceding facts, and others not mentioned.

1. That all solutions, having a slight alkaline reaction, may, while the general surface is preserved, occasion the formation of local concretions of oxide, at certain points of the surface of iron immersed in them.†

That the general character and rapidity of this process varies with the presence, and according to the proportions, of atmospheric air, and different salts, that may be brought into action, and is further determined by the presence of breaks in the continuity of the surface of the metal immersed, whether these interruptions exist in a single piece, or at the lines of separation between different pieces of iron, or even between the latter and other substances.

3. That acid solutions determine a uniform, and less bulky, oxidation; on copper, both acid and alkaline solutions determine a general oxidation.

Local concretions must then be expected to ensue in wrought or cast iron pipes, when exposed to a current of water slightly saline, and having a feeble alkaline reaction. In such case, it will be necessary either to abandon the use of this metal, or at least to contrive convenient places of access to the pipes, at short distances from each other. In this case, owing to the minute state of division of the particles, and the granular formation of the concretions, the obstruction may be removed by the application of a gentle friction, or by the assistance of a diluted acid, too weak to injure materially the metallic parts.

Note by the Translator.

The general properties developed in this paper, as belonging to all alkaline solutions, are considered by the author to present a new series of electro-chemical actions to the attention of the scientific chemist.

[From the Journal of the Franklin Institute.]

Remarks in relation to some new Concretions, produced artificially on Iron. By M. PAYEN.

In a recent paper, the results of which have been verified by M M. Becquerel and Dumas, I made known a method of forming the protoxide and peroxide of iron, in the shape of nodular concretions, on certain points of the surface of iron,* while the remainder of the surface preserves unchanged its metallic state.

An investigation, having its origin in the electro-chemical theory, and the properties of alkaline solutions, has led me to the discovery of another kind of local concretions, produced by a series of still more complicated reactions.

A polished cylinder of soft iron was kept immersed, for a year, in a close vessel, in a solution of sub-acetate of lead, and consequently exposed to the influence of an alkaline reaction; for a short period, no signs of oxidation were observable, but it afterwards became studded with a number of spongy, greyish excrescences, which presented themselves on a line parallel to the axis, (see preceding paper.) The remainder of the surface of the iron preserved, unaltered, its original appearance.

The concretions were made up of small particles, aggregated in the form of a metallic sponge, that presented the appearance and ductility of lead.

A slight friction was sufficient to unite the particles when separated, and to give the mass the brilliancy of that metal.

When flattened together under a slight pressure, and heated in a tube out of contact with the air, they melted, and hardened, on cooling, into a dross, that possessed all the properties of lead.

The liquid itself remained limpid and colorless throughout the year; afterwards, when exposed to the air, it quick

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* (1) In making a saturated solution of chloride of sodium, in water of the Seine, the liquid suffered a contraction equal to 0.03 of its volume, and disengaged 0.015 of the same volume, of gases contained in the water. The temperature was 59 Fahr., and the pressure 30 inches.

† (2) The chloride of sodium, when present by itself, in small proportions, in water, determines, on the surface of polished iron, local oxidations, which remain greenish colored the longer, and preserve the remainder of the surface the better, accordingly as the iron is farther removed from the surface of the liquid in contact with the air; but these oxidations do not assume the nodular form.

* (3) In all the preceding experiments, made with a view to their practical application, the water used was taken from the river Seine, and filtered after its mixture with the alkaline solution, and the subsidence of the precipitate, (which fell in consequence.) The temperature during the experiments varied from 59 to 62.6, and from 68 to 69.8, Fahrenheit. Several of these experiments, repeated with the use of distilled water, gave the same results, when the proportions of the alkaline substance, of the atmospheric air, &c., were the same.

† (4) Wrought and cast iron, half immersed in a weak ammoniacal solution, were preserved, by the vapor of the ammonia mingling with the air above the liquid, during all the variations of temperature through out the year. The solution contained 0.1 of ammonia. All the above mentioned concretions are composed of a mixture of hydrated protoxide and peroxide of iron; the proportion of the latter slowly increases.

* The preceding paper is the one referred to by author.—[Translator.]

assumed a yellowish brown color, which gradually deepened; it still possessed a feebly alkaline character.

A portion of the liquid being treated with sulphuric acid, acetic acid was developed. Another portion, by the action of a soluble sulphate, gave a precipitate of sulphate of lead, and the supernatant solution had all the properties of the salts of iron.

The tube in which the solution, and the immersed iron, were enclosed, contained, then, evidently, the following substances, present, at the same time, together.

1, sub-acetate of lead; 2, metallic iron; 3, lead, in the form of a concretion; 4, acetate of iron, partly acetate of the per-oxide.

It appears to me to follow, from the preceding facts, that, at the points where, by the presence of foreign bodies, and interruptions in the continuity of the surface, the elements of a pile are constituted, the iron is oxidized at the expense of the oxide of lead, the latter metal being revived, and aggregating in concretions, at the same points, while the oxide of iron, united to its equivalent of acetic acid, diffuses itself in the liquid.

By the continuance of the same series of reactions, the volume of the concretions is augmented, while, by the alkaline reaction of the undecomposed sub-acetate of lead, the rest of the surface of the iron is preserved from oxidation, and is thus enabled to maintain its metallic lustre.

On the advantages to be derived from the establishment of an Agricultural Professorship.

To the Editor of the Farmer's Register:

Barboursville, July 23, 1835.

Sir,—It has been a settled conviction on my mind for years, that a professorship of agriculture—a pattern farm, and such a paper as yours, united therewith, would be productive of incalculable benefit to the commonwealth. The space of a letter is too confined to admit of one half being stated. Suffice it to say, it would elevate the science—add dignity to the pursuit—call off from encumbered vocations a portion of the mind of our citizens now lost to the community—present a rallying point for all the scattered information of the land—reduce to the test of experiment every theory plausible enough to justify it—by the same standard to prove the value of every discovery or improvement—promote economy by causing one experiment for many—a certain and rapid communication, through the State, of the results—furnish a sure means of ascertaining the nature of our climate—the quantity of rain falling in the year—the seasons when drought most generally prevails—and by consequence, furnish data to guide the husbandman in the cultivation of crops, both as to time and kind. But I must stop—for I find no end to the advantages that would result from such an establishment. Let me, however, add one more. All these things are to be done before the youth of Virginia—the future men of the commonwealth, destined eventually to influence her destiny. A portion of these, selected from every part of the state, (say one to each congressional or senatorial district,) of promise, but unable, from poverty, to educate themselves, to become the adopted children of the state, would be able by alternate labor and study, alike to keep up the farm, and to improve themselves. Indeed, it is worthy of the profoundest consideration, whether every student of the University would not profit by a few hours work daily, in the proper season. These being my views, I submit to you whether it does not behoove the tillers of the earth to make an effort to induce the legislature to attend to their neglected interests. How is this to be done? I answer, as every other sect effects every thing by conventions—to that alternative we must also resort. What say you to such a convention, to meet in Richmond the first Monday in January? Let any one who feels an interest in the object attend. Let each agricultural society in the State be represented there. If it be asked what good can come of it, the answer is, let us try it. A free communion of the intelligence of the land cannot be altogether unproductive of good fruit. Apart from what can be done by such a convention on its own means, an appeal may be made to the legislature under the weighty sanctions of their united wishes, to do something for us. If the view which I suggest is esteemed impracticable, they may incorporate an agricultural society in each congressional district, and award a small sum to each, to be distributed in premiums, after the manner of New-York and other states.

But it is objected that it will cost something. Have we not as a class offered our fleece annually, without a murmur, to be appropriated to other improvements? Is it unreasonable that in turn we should require a small portion of our own to be applied to our peculiar benefit? A small portion of the interest paid annually by the University, would in a few years put our scheme completely in operation, and I verily believe after that it would be able to support itself. However, all these things might be discussed in convention, and digested in a form that would be most acceptable. And I may be permitted to add, that for once we should have a convention whose sole object would be the good of the country—a spectacle so singular in these times, that it could not fail to be as consolatory as the oasis to the weary traveller of the desert.

If you agree with me on this point, you can greatly promote the object by inviting the meeting in your journal. If I thought my name would be of any service, you would be at liberty to use it with my remarks. But I fear not. However, do as you please. I have it much at heart to do something. Better heads than mine may suggest better plans, to which I will most cordially submit.

Accept assurances of my high consideration. JAMES BARBOUR.

[From the Maine Farmer.]

MODE OF MANAGING FROST-BITTEN CORN.—On the night of the 3d inst. there was a severe frost in many places; I have seen some pieces of corn completely killed, and being aware of the various opinions that are afloat, as to the management of corn after a premature frost has killed it, and thinking as every body else is apt to think, that "my way is the best way," I will tell you my way, and that is when corn has been killed or touched rather hard by the frost before it has become ripe or hard, I think the best way is to let the corn stand, and as soon as the husk turns or becomes a little loose from the ear, take and strip the husk clean from the ear, so as to leave the corn bare to the influence of the sun and wind, and you will find it, I think, much better than it would be if it were cut up and shocked.

Yours, &c., B. G. E.

August 17.

P. S.—Which is your *way* where there are a great many suckers on corn—to let them grow, or do you cut them off; ain't they "omniverous?"

NOTE.—We formerly cut them all off, but are now somewhat doubtful on that point. See Maine Farmer No. 21, Vol. 3d.—[ED.]

[From the Farmers' Register.]

REMARKABLE FECUNDITY OF A EWE.—Mr. William Nottingham, sen., has at his farm near Eastville, (Northampton, Va.,) a ewe which has brought 20 lambs in 7 years and 2 months, from the first to the last yeaning; and omitting the last, the first 19 lambs were produced in less than 6 years. The following dates and numbers were copied from the written memoranda kept by Mr. Nottingham, on whom, as a man of observation and accuracy, the most entire reliance may be placed.

The ewe was yeaned in February 1827.

In February 1828, she brought	2 lambs.
February 1829,	4
November 1st, 1829, (being 7 in 19 months.)	3
February 7th, 1831,	3
March 10th, 1832,	3
January 18th, 1833,	2
December 31st, 1833,	2
April 13th, 1835,	1

None of these were supposed to be premature births, and as large a proportion of the lambs lived as could have been expected in ordinary flocks, from births as they usually occur. Great care was generally taken of the mother, but owing to particular occurrences, she was sometimes greatly exposed. Her four lambs were yeaned at a birth, when out in a severe snow storm, and all (I believe) died in consequence. The ewe was raised as a house lamb, and is of a common breed. She was the only ewe kept on this farm, and has been always fed abundantly. When giving milk, her udder was stated to be more like a cow's in size, than that of a sheep. But if her fecundity was caused altogether by high feeding, it would seem that the same

effects may be continued in his race by like treatment. Some of the female lambs of this ewe were given to Mr. Nottingham's sons, and have been kept as breeders, with the like abundant supply of food. Of these, "one has had 4 lambs at her first and only yeaning—and a third has had 3 lambs at one yeaning." These latter facts were also furnished me in writing by Mr. Nottingham's son. I omitted asking what proportion of these were raised—and did not note down the proportion of those lost by the old ewe.

Mr. Nottingham's flock of sheep is kept on grazing land on the sea side, and the mother of this family has been the only ewe kept at his house. In addition to this peculiar station, she had the company every year except the last, of more than one male—as several ram lambs were brought home from the sea-side pasture at shearing time, to be killed in the course of the year. Upon these facts, and his observations, Mr. N. has formed the opinion that the several lambs of each yearling, had different sires—and that the number of males in fact determined the number of lambs. Whether this strange opinion is well founded or not, Mr. N. is so sure of it, that he has latterly more than once before the yeaning stated correctly the number of lambs that would be produced. The last time there was only one male with her.

E. R.

July 13th, 1835.

[From the Farmers' Register.]

"A DEED WITHOUT A NAME."—Having derived much useful information from your valuable periodical, the Farmers' Register, I have thought it the duty of the whole fraternity of agriculturists to contribute each his portion of information for the benefit of the rest. Indeed, my mite would have been thrown into the general coffer before this, but for my thorough aversion to placing my proper name to my paper, which possibly might get me into difficulty, or which might involve any sort of responsibility. Shall I tell you the reason? A *friend* of mine gave me a moral aversion to its vain glorious use. Some sixteen years ago I visited Richmond, and was invited by a gentleman of that city to partake of his good cheer, and being somewhat fond of the good things of this life, I indulged as far as a reasonable man may be supposed to have done. At the winding up of the feast, my friend invited me to unite with him in a note for $10,000 at one of the banks, which he would at a proper time redeem. The request was reasonable enough—the name a mere matter of form. Besides, it was quite a creditable thing to be the endorser—aye the endorser, of such a good fellow, and one who spoke of thousands as I now do of dollars. Well! sixteen years have passed away—my friend is a bankrupt—his property made over to a favored few: and if you have any curiosity to know who the author of this paper is, on the first discount day in August, a small man, of a sorrowful countenance, wearing a broad brimmed straw hat, and riding a gray mare, may be seen on the turnpike, wending his solitary way to Richmond to renew this very note. True, it has been clipped a little, but the sum of $6,450 still remains due. Can mortal man wonder at my aversion, therefore, to write my name in full on any paper? Such is my abhorrence, Mr. Editor, to any unnecessary display of the sort, that in addressing my own dear children I subscribe myself generally, simply "your farther." I know them to be wise, and rely on their knowledge of the old man.

With these preliminary remarks, I shall proceed to give in my experience as a tiller of the earth. *I have marled*, Mr. Editor, God be praised, I have marled. Not to the extent of thousands, but a cool hundred or two. Now mark me. In one of my best fields, I had a gall, a washed knoll, precisely such a spot as every judicious farmer most sedulously avoids when showing his crop to his neighbors. Now, sir, one of my first operations with the precious mineral, was to apply it to this knoll, or gall. And what suppose you is the consequence? Why, sir, when a neighbor comes to see me, and a walk is proposed, I generally manage to take him by a sort of circumbendibus, around to this poor despised gall, where on this 13th of July, the corn is actually tasseling, and probably will produce six or eight barrels per acre. I could not have believed it on the testimony of others.* Mortal man would scarcely believe it. And now my good sir, when my spirits are depressed, I generally take a walk to look at the corn on the marled land. When the cashier informs me that on such a day my note falls due, I walk to the marled land. If any thing crosses me, there I go, morning, noon, or night. Upon my word I begin to think marl will cure half the ills of life. My wife says it has prevented the chickens having the gapes. She declares that never had she so litte trouble with the young turkeys: and in fact she verily believes the health of the children is greatly improved. All this, my dear sir, she attributes to the marl. And now, sir, I am straining every nerve to fertilize every arable acre of my farm, by its immediate application. An ox cart is generally devoted to this business: and I regret that my means will not enable me apply double the force to this beneficial purpose.

I entreat you not to regard this as an exaggerated statement. I am incapable of an untruth, or any manner of deception.

SUBSCRIBER.

* *Neither can we*—and it is presumed that our correspondent will premit others in this respect to assume what is precisely his own ground. Further — *we would not believe our own eyes* in such a case—and if more respect could be paid to the eyes of another, it would not be to a correspondent without a name. Of course our amount of faith as to such effects of pure marl alone, is (like our correspondent's interest in the bank,) a quantity largely *minus*.

But though holding as nought the only agricultural fact of our unknown correspondent—and supposing that his object is to make light of those whom he may deem marl-mad farmers—his communication is freely given a place; and if for no other reason, as evidence that we are willing to bear our full share of good humored proof, whether deserving or not. In this it is hoped that a profitable example is offered to some of our "thin-skinned" friends. Whenever our new correspondent will give his true name, or authenticated facts, he will be received with hearty welcome—(and the more so if his hand writing should be more legible—) for however well he handles his present subject, it is not altogether suited to this journal, and would not have been admitted, but for its apparent personal bearing.—[ED. FARM. REG.]

[From the Genesee Farmer.]

DIGGING WELLS IN SAND.—Having recently dug two wells, the last twenty feet of each being in sand, the method adopted to excavate a sufficient depth into this troublesome material to well diggers, I think it superior to the old practice of curbing.

The wells are each five and a half feet in diameter, and on reaching the sand and water, we placed a wheel, made of two thicknesses of two inch oak plank firmly pinned together, of the same diameter of the well, with a hole cut through its center, of about three feet diameter, leaving the segment about fifteen inches wide. On the segment of this wheel, we commenced laying our wall, until it was about one foot high. We then filled in, behind the wall, a quantity of coarse gravel, to prevent the sand from running into the well with the water, thus forming an excellent filtrator. We then commenced removing the sand from the hole thus formed, and when the wall settled a foot, we laid up another foot locked in with gravel. In this way we continued excavating and walling with perfect ease and safety, until the well was of sufficient depth to furnish the requisite quantity of water. The advantages of this method of forming a well in sand over the old plan of curbing, and leaving in the well a quantity of wood to injure the water, must be too obvious to require illustration, not only making a much better well, but at a much less expense.

L. A. S.

Lockport, 8th month, 1835.

INCREASE OF BUSINESS.—The following brief statement shows conclusively the immense increase of business in the *West*. Indeed, we of the East cannot duly appreciate the importance of that fertile region without a visit to it, and a visit is almost sure to make the visiter a resident.

The following is the amount of tolls collected on the Ohio and Miami Canals for the month of July 1834 and 1835.

OHIO CANAL.

	July 1834.	July 1835.
Cleveland,	$3,386 78 0	$9,460 00 0
Akron,	482 14 5	589 26 5
Massillon,	1,223 24 0	2,101 07 0
Dover,	718 02 0	1,046 41 5
Roscoe,	710 73 7	2,131 07 5
Newark,	1,276 95 9	3,996 85 1
Columbus,	22 65 0	334 70 0
Circleville,	153 15 2	1,609 65 1
Chillicothe,	217 06 3	4,265 29 1
Portsmouth,	926 47 0	2,375 00 4
	$9,117 32 6	$24,889 42 2

MIAMI CANAL.

Dayton,	$1,253 70 0	$916 14 0
Middletown,	580 24 0	399 19 0
Hamilton,	170 59 0	126 80 0
Cincinnati,	1,416 06 0	2,449 57 0
	$3,426 67 0	$ 3,891 70 0
	9,117 32 6	24,889 42 2
	$12,542 99 6	28,781 12 2
		12,543 99 0
Increase in favor of July 1835,		$16,537 12 6

DURABLE WHITEWASH.—I am enablen to certify the efficacy of marine salt in fixing whitewash made of lime. In the year 1795, when I was director of the naval artillery at the port of Toulon, I was commissioned to ascertain the utility of a method proposed by the master painter of that port, M. Maquilan, for whitewashing the ships between deck, and likewise their holds, in a durable manner, by means of lime. Our report was in favor of this process, which consists in saturating water in which the lime is slacked with muriate of soda, (common salt.) The whitewash produced by it is very permanent, does not crack, nor come off upon one's hands or clothes. The experiment was made only on wood. It appears from M. St. Bernarde's account, that it succeeded equally well on walls.—[Annales des Arts et Manufactures.]

FARMERS AND MECHANICS.—Miss Sedgwick, or one of the Misses Sedgwick—for there are three of that name who have appeared in print—have just issued a new work from the press of Messrs. Monroe & Co., of Boston, entitled "Home," and dedicated to the Farmers and Mechanics. The sentiment conveyed in the following appropriate language is no less just than true. One of her characters charges her neighbor with the intention of educating his sons for the learned professions, and his daughters for the wives of professional gentlemen, to which the latter thus sensibly replies:

"I shall be governed by circumstances; I do not intend or wish, Anthon, to crowd my boys into the learned professions. If any among them have a particular talent or taste for them, they may follow them. They must decide for themselves in a matter more important to them than any one else. But my boys know that I should be mortified if they selected these professions from the vulgar notions that they were more genteel—a vulgar word that ought to be banished from the American vocabulary—more genteel than agriculture or the mechanic arts. I have labored hard to convince my boys there is nothing vulgar in the mechanic profession—no particular reason for envying the lawyer or the doctor. They, as much as the farmer and mechanic, are working men. And I should like to know what there is particularly elevating in sitting over a table and writing prescribed forms, or in inquiring into the particulars of diseases and doling out physic for them. It is certainly a false notion in a democratic republic, that a lawyer has any higher claim to respectability—gentility, if you please—than a tanner, a goldsmith, a painter, or a builder. It is the fault of the mechanic, if he takes the place not assigned to him by the government and institutions of his country. He is of the lower orders, only when he is self-degraded by the ignorance and coarse manners which are associated with manual labor in countries where society is divided into castes, and have therefore come to be considered inseparable from it. Rely upon it, it is not so. The old barriers are down. The time has come when 'being mechanics,' we may appear on 'laboring days' as well as holidays, without the 'sign of our profession.' Talent and worth are the only eternal grounds of distinction. To these the Almighty has affixed his everlasting patent of nobility, and these it is which make bright 'the immortal names' to which our children may aspire as well as others. It will be our own fault, Anthon, if, in our land, society as well as government is not organized upon a new foundation. But we must secure, by our own efforts, the elevations that are now accessible to all."

MANUAL LABOR SCHOOLS.—We consider the man who first introduced this important system as a public benefactor—and entitled to more credit for his services than if he had conquered a nation.

If "he who makes two ears of corn, or two blades of grass, grow where only *one* grew before, deserves better of mankind and his country, than the whole race of politicians put together," how much more does he deserve, who points out a way by which two young men, destitute of means, according to *previous* opinions and practice, can, where only *one* was before enabled to, acquire an *education*, and thereby contribute to the education of others, and to the general diffusion of knowledge?

Not that a young man is *now* enabled to do more than he could have done if he had only been so convinced of the fact; but it is by having pointed out the *method*—and by convincing young men of their *ability*, to support themselves, every day, by their own exertions, without interfering with their studies, which is so creditable to its author—as now every young man who has learned a trade may by that means readily acquire a collegiate education, by his own labor, and be none the less, but actually much more, respected for the manner of acquiring it.

MANUAL LABOR IN WATERVILLE COLLEGE.—From a recent statement by President Babcock, of Waterville College, Maine, it appears that the manual labor department of that Institution is remarkably successful.

"Considerably more than one half of the whole number of students in College are regularly engaged in labor (chiefly in the College shops) three hours a day. Their earnings vary from 50 cents to $2 50 cents per week, according to their skill, strength, and diligence; but on an average they pay for their board by their labor. This system of labor has been in successful operation for more than two years, (with the exception of a few weeks last autumn, when the scarcity of lumber partially suspended work in the shops,) and the results of it are no longer doubtful. The regular exercise thus furnished is found highly conducive to health, and to intellectual vigor. No student is hindered in the successful prosecution of his studies, by employing three hours a day in work. The good order of the College is also essentially promoted by this kind of employment of the leisure hours of so large a portion of the students."

He gives the following reasons why this plan has succeeded better there than in many other institutions.

"A large proportion of our students are able-bodied men, who have been accustomed to labor, and do not regard it as dishonorable. We have an excellent and popular superintendent of the shops, at a reasonable charge. The shops, tools, &c., have been furnished by contributions for the purpose, and only need to be kept in repair by a small tax on the occupants. We have also unusual facilities for purchasing lumber, and disposing of work of various kinds from the shops. By carrying the principles of the division of labor into effect, the several processes are so simplified, that young men, of common ingenuity, if they have never before been accustomed to the use of tools, very soon learn to work to good advantage. The low price of board and tuition (only $1 a week for the former, when paid in advance, and $20 per annum for the latter,) are an encouragement to many worthy young men, thirsting for the advantages of education, to endeavor to procure one here chiefly by their own efforts."

It is also stated that individuals of proper age, who do not pursue the regular course, are allowed to reside in the institution, and are permitted to engage in any studies they may choose.—[Am. Annals of Education.]

The following excellent article on Female Education is from the "American Annals of Education"; and, although it is not addressed to "Apprentices," it may be of use to them to know how to select—for most of you will probably desire to select, when in a situation, a companion for life.

A *mechanic*, above *all other* men, ought to have an industrious, prudent, and economical wife—she should not only know how to govern her family, but also to govern *herself*. She, above all women, should feel and know that *home*, rather than the *streets* and *neighbors*, is *her proper place*. If therefore you would have such a companion, seek *not* for her where the mother is a *fashionable*, or one who spends more time *from*, than *at*, home.

FEMALE EDUCATION.

Domestic Habits.—In advising as to the course of early female education, I have insisted on the necessity of cultivating, in childhood, the habits of Temperance, Order, Activity, Industry, and Self-command, as essential to the health, happiness, and usefulness of woman.

There is another branch of female education of the first importance which involves many particulars, but may be termed the *preparation for domestic life*. This involves both *habit and skill in domestic employments*.

We must begin with forming domestic habits. No quality is more essential to the dignity of the female character; and without it there will never be patience in the acquisition of *domestic skill*. On the other hand, the domestic disposition is best cultivated by giving domestic employments. Useless objects and occupations soon tire us. Splendid furniture and ornaments, and mere amusements, produce a weariness, from which there is no escape, but by perpetual change. On this plan, how many families are made, not automatons, unfortunately, but *locomotives*, active only in vain and mischievous efforts for "some new things." As capable of happiness as their neighbors, they have never learned the true mode of enjoying it. They promenade the streets; they wander from shop to shop, from house to house, from street to street, gathering every subject for vanity or trifling, every secret or witticism, or report, they can find, to enlarge their supply of occupation for idle hours. Such "busy-bodies" always leave their own duties undone, or ill-done; and the habit

of neglecting their own concerns necessarily leads them to occupy themselves with the affairs of others, and to interrupt them in their occupations, or interfere with their peace.

Let the daughter then be guarded against this pernicious fault. Let her be trained to feel, that her *first great duty*, when not engaged in the acquisition of useful knowledge, *is at home*—that she is her mother's natural assistant or substitute, in the care of the nursery, and the family. When she has well-learned the lesson of obedience and self-command, she may safely be entrusted with the direction of the other children, but not till then. Under the direction of her mother, she may, in this way, complete her course of training in self-government, and learn to imitate her heavenly father, who is "kind even to the evil and unthankful."

But she must also learn in the nursery that peculiar duty of woman,—the care of the feeble and the sick. Every family, and every child, are every day liable to accident and disease. Nothing in the nursery is so important as habitual care to prevent disease, and to relieve pain, or remove the cause at once, when it occurs. More can be accomplished to secure the health of children by the faithful, interested nurse, always present, than by the absent physician, however skillful, in occasional visits, which often prove too late to remedy the evil. This office, the elder sisters, and each of them, as they grow up, should be taught and accustomed to fill. For this purpose, she must acquire, not merely skill in watching and providing for the wants of her charge: presence of mind, gentleness of disposition, combined with firmness of resolution, are indispensable to the good nurse. These must, therefore, be cultivated and matured by constant practice. Daughters who are not trained in this manner can never be safely entrusted with the health of a family. Poor and pitiable matrons—still poorer and more pitiable, their companions, and their families!

But the nursery is not the only place for domestic duties and skill. Humble as the theme is, we cannot complete our view of female education without descending to the kitchen; for the table of the king himself must be furnished from it, and even the health of the family depends upon its right management. Order, and skill, and vigilance, must begin there, or comfort can never inhabit the house. She who governs it must learn in the only way possible—by acquiring practical skill in all that is to be done. This is an every-day business, not to be accomplished by one great effort, or by some wonderful plan, but by the regular, returning care of a directing eye, and a skillful hand. The mistress of a house becomes a pitiable cypher, if she has not the practical knowledge to direct the when, and the where, and the how, of every thing that concerns her family affairs; and she can learn this only by experience. Respect is paid to authority, only when those who exert it know how to give directions in the right time, and the right manner.

Let the daughter, then, as much as possible, learn every part of household duty, practically. It was a wise step in a circle of ladies in one of our cities, to finish the education of their daughters in a cookery school. They attended punctually, and daily, for a certain number of hours, long enough to give them a competent and practical knowledge of the arts and the economy of the kitchen. Their works praised them; and the convenience and pleasure of a well regulated, economical, and healthy table was the reward of their efforts. Regularity and order prevailed in every department of the house, because the whole was directed with intelligence and skill. The incessant causes of scolding, and fretfulness, and discontent, were in a great measure removed, by the training which not only gave these matrons habits of industry and self-command for themselves, but taught them how to direct the employments of others with regularity and success.

In visiting the house of Mrs. ———, every one is ready to ask, "How could you bring your family to this regular, quiet, pleasant state?" The simple answer is, "by understanding what every one ought to do, and how it ought to be done, by beginning right and persevering in the right course, until every one knew her duties, and could do them well." A course of actions will form a habit; and habit, we know, is second-nature. In this way, hard things become easy, and labor pleasant. Idleness will be at length painful, and fretfulness intolerable. It will be easier to do right, than to resist the steady current of order in the family; and every disturber of the peace will be frowned upon, as an enemy of the whole.

And while I am urging this duty, I cannot help alluding to the sad neglect of it in modern days. What is to be the history of the rising generation? Must it be told in language like this?

"Fashion and accomplishments, and amusements, and unnecessary display in literature and science, absorbed the whole time of the females of this period. Domestic cares and virtue seem to have descended to the tomb with their grandames, or to be consigned with their pictures to the garret. Their domestic skill was lost, and their domestic habits forgotten or despised; and when the tale was told by some relic of former days, or appealed to as an example, it was only met with a suppressed smile at such antiquated notions, or an open scoff at those who busied themselves at home in ignorance, or submitted to be slaves to their husbands and children. The immediate consequences were such as might be anticipated. The wealth which industry abroad and frugality at home had accumulated, was scattered by indolence and ignorance, and prodigal expense. The noble dwellings which it had raised and furnished, were sold to pay the debts of extravagance, or pulled down to make way for others, which soon shared the same fate. Many a mechanic, who grew rich by the obsolete virtues of industry and economy, occupied the splendid house of those who looked down upon him, and despised his virtues; and his daughters held the first station in society, while those of his employer might be found in some obscure corner, with little to cover them but worn-out finery, and apparently with little to sustain them but their pride in what they had been. Nay, the domestic was often to be seen taking the place of his master, and occupying the station from which his children had fallen, by the neglect of forming domestic and industrious habits in their education."

Whether this shall be the record of the whole generation or not, such is, unhappily, the history of many a family, and is likely to be that of many more. Perhaps I shall not even obtain a hearing from those who have already begun this course. The whirlpool seldom permits any to escape who have once entered, even its margin. But those who are approaching it may, perhaps, hear me; and I warn them, that they guard against its powerful current before it is too late; for I have witnessed more examples than I can mention, of its ruinous effects.

I am aware that economy and its attendant train of minor virtues are *old fashioned* matters. They are found in here and there a family; but the very names seem rather to belong to the dictionaries of the last century. But there is a section in an old book, too seldom studied—the last counsel of a wise man—which recommends them; and as it describes particularly the virtues and the defects of women, it ought to be often read by mothers and daughters. Although not new, its very antiquity, I trust, will give it authority with most readers; and in addition to other salutary truths, they will learn that in female education, and in female duties above all things, "the fear of God is the beginning of wisdom." SENEX.

HEAT.—For a long time, philosophers have supposed that meteoric iron is made hot while traversing the atmosphere. A curious experiment was resorted to by M. Bierley, a foreigner, within a few months, which may possibly be of some service to those engaged in similar pursuits. A bar of iron, heated to whiteness, was held against a strong current of air from the blowing apparatus of a forge. Singular as it may seem, the bar, instead of cooling, burned very brilliantly, throwing off scintillations in every direction. The temperature rather increased than diminished. This experiment makes it very certain that a metallic mass, whirled through the upper regions of the air, would become extremely hot and eventually sparkle, as many meteors do just before they fall.—[Scientific Tracts.]

Report to the Board of Directors of Bridges, Public Roads, and Mines, upon the Use of Heated Air in the Iron Works of Scotland and England. By M. DUFRENOY, *Engineer of Mines. Paris*, 1834.

REMARKS UPON THE NATURE OF THE COAL EMPLOYED IN THE FURNACES USING CRUDE COAL.

It results from the preceding description, that certain coals, those of Wales, are employed in their natural state, for the fusion of iron ore in the smelting furnaces in which combustion is sustained by cold air.

That a great number of others — the coals of Glasgow, for example—are also susceptible of being used in the crude state, when the hot blast is employed; but that, for some varieties, the transformation into coke appears still to be indispensable, whatever be the plan on which the iron is made. To appreciate the causes which produce these remarkable differences in the properties of these coals, I have collected samples of most of those employed in the works spoken of in this report, which M. Berthier has analyzed in the laboratory of the School of Mines, and the results of which he has communicated.

Coal employed in the crude state in the Welsh Iron Works. Cold Blast.

	Dowlais.	Cyfartha.	Pen-y-darau.
Carbon,	0.795	0.784	0.768
Ashes,	0.030	0.028	0.032
Volatile matters,	0.175	0.188	0.200
	1.000	1.000	1.000

The coal of Dowlais is lamellar, separating across the layers in smooth and brilliant plates. This coal is composed of two distinct parts, one brilliant, dividing into

small cubic fragments; the other, completely hard, fracture conchoidal, is nearly analogous to the Cannel coal.

These two varieties do not blend, but form in each strata small beds of greater or less thickness; the brilliant part greatly predominates. The Dowlais does not soil the fingers; it swells very little in coking, and does not cake; the ashes are perfectly white.

The *coal of Cyfartha* is rather slaty, or lamellar, but is composed, as the preceding, of the union of the brilliant and compact black parts, intimately mixed, like the quartz and feldspar crystals in granite.

These two varieties of coal act very differently; that having a brilliant fracture swells and cakes sufficiently, whilst the dull kind is dry, and does not change by exposure to the fire. It is probably this mixture that gives to the coal employed at the Cyfartha works the property of resisting more than any other the action of the blast, and the different movements which take place in the furnace; its friability is also due to this circumstance; but the bitumen, which exists in sufficient abundance in the shining coal, cements the different parts of this coal, and gives it a great solidity after having been exposed to the fire.

The *coal of Pen-y-danau* has the same properties as the preceding, except that the mixture of the two kinds is less intimate. These three coals, belonging to the coal basin of Wales, are very dry, and owe this property to the excess of carbon which they contain; they are analogous to the coal of Rolduc.

Coals employed in a crude state in Furnaces worked with Heated Air.

	Environs of Glasgow.			Staffordshire.	Derbyshire	
	Clyde.	Calder.	Monkland	Tipton near Wed'y	Butterly.	Codnor Park
Carbon,	0.644	0.510	0.562	0 675	0 570	0.515
Ashes,	0.046	0.040	0.014	0.027	0.030	0.030
Volatile matters, Water,	0.005	0.039	0.115			
Volatile matters, Gas,	0.139	0.081	0 094	0.300	0.400	0.455
Volatile matters, Tar,	0.166	0.330	0.215			
	1.000	1.000	1.000	1.000	1 000	1.060

The *coal of the environs of Glasgow*, employed in the Clyde, the Calder, and the Monkland works, present characters sufficiently marked, and of a composition very analogous, as seen by the preceding table.

This coal is usually dull, a little compact, hard, and does not crumble between the fingers; it presents, in its transverse fracture, a series of small lines, which gives a slaty appearance, though it does not, in reality, possess this quality. It is very well stratified, and the lumps cleave in flat fragments, of greater or less thickness; the surfaces of separation are almost always marked by black carbonaceous matter, which soils the fingers, and resembles charcoal in its fibrous appearance and dull color.

This coal is often traversed by extremely thin fillets of carbonate of lime, the direction of which is perpendicular to the layers, and sometimes pyrites is found.

The pieces of Glasgow coal submitted to analysis, softened but slightly; they cement together without change of form.

The *coal of Tipton*, which supplies the works of Lloyd & Forster, near Wednesbury, is slaty; it is composed of small beds, a few lines in thickness, separated almost always by an extremely thin bed of black carbonaceous matter, like charcoal. This substance is so abundant, that a piece of coal is rarely found at Tipton more than four inches thick, which does not present one or two layers of this friable material. This coal, shining in its fracture, divides into small pseudoregular fragments; it is slightly tenacious, and swells but little in coking.

The *coals in the environs of Derby* are divided into two principal qualities, designated under the names of *Cherry coal*, and *Soft coal*; the first, which is the harder, resists the action of the fire better than the second. The furnaces of Butterly, which use heated air, consume the Cherry coal exclusively; this coal is slaty, and presents lines of dull black, which gives it a strong resemblance to the coals of Scotland.

The soft coals, employed principally for steam engines and puddling furnaces, are used also, at Codnor Park, for the roasting of ores. This coal is shining, slaty, and separates in pieces by very light pressure; it contains some thin portions of black and friable carbonaceous matter, already alluded to.

Notwithstanding the considerable loss which these two coals sustain by coking, they scarcely change their form; they swell and cake slightly, and their ashes are perfectly white.

Coals that appear to require transformation into Coke, when employed even in Furnaces worked with Heated Air.

	Birtly Works, near Newcastle.	Tyne Works, Northumberland	Apdale Works, near Newcastle, Staff'dshire.
Carbon,	0.605	0.675	0.624
Ashes,	0.040	0 025	0 0 5
Volatile matters,	0.355	0.300	0.341
	1.000	1.000	1 000

The coal consumed at the Birtly and the Tyne Iron Works comes from the mines in the environs of Newcastle-upon-Tyne; it is shining, and splintery; it does not soil the fingers, nor does it crush by a light pressure.

This coal is, in general, very pure, containing no veins of carbonate of lime, or pyrites; it is very adhesive, and swells much by the action of heat, so that the value of the coke exceeds that of the coal employed. I am assured at the Tyne Works, that they have tried in vain to work Newcastle coal in the crude state.

The coal of the *Apdale Works* is lamellar, shining and splintering in the direction of the strata; it divides into small quadrangular fragments; in the cross fracture, it presents large bands, perfectly smooth, and very brilliant. This is owing to the super position of small layers, of which the nature is a little different; this coal is very adhesive, swells in the fire, and gives a light, silvery, but very solid, coke.

If we compare the composition of the different coals that we have examined, we perceive—

1st. That the coals employed in a crude state, in the furnaces worked with cold air, are dry, very carbonaceous, and, in fact, true anthracites.

2d. The coals, as those of Scotland and Derbyshire, which, though bituminous, serve, in a crude state, for the fusion of iron ore in the smelting furnaces worked with heated air, are, however, still dry coals.

3d. Finally, the fat, bituminous, adhesive coals, which change their volume, and swell by the action of fire, appear still to require a transformation into coke, to give advantageous results in the smelting of iron ore.

QUALITY OF THE PIG IRON AND BAR IRON OBTAINED IN THE WORKS USING THE HEATED AIR BLAST.

The iron for castings in Scotland bears a less commercial value than that of Staffordshire. The first were quoted in the Liverpool market, in the month of July (1833) last, at 4*l*. 15*s*. sterling per ton, whilst the Staffordshire iron sold, at the same time, for 6*l*.

The difference between the price of these kinds, together with the prejudice generally entertained that the hot blast is unfit for the manufacture of iron, led some to doubt the advantages to be derived from the new method. The numerous observations I have made, tend, on the contrary, to prove that, for cast iron, at least, the products of the furnace working with heated air are superior to those of the cold blast. The less value of the Scotch iron is no evidence against this opinion. In fact, the Staffordshire iron has always been regarded as the most suitable for castings, and has always borne a higher price than that from most of the other parts of Great Britain; perhaps, also, the great difference in price between the Scotch and Staffordshire irons may be accounted for by commercial circumstances, for the Scotch now make iron much cheaper than others, and the production being increased almost one-third, by the employment of heated air alone, the iron masters have thought it to their interest to reduce the price of their iron, which they are enabled to do without loss.

It would be desirable if this important question could be decided by direct experiments; but for want of such, I will state the uses of these different products in the arts—uses which are, perhaps, as conclusive as experiments.

In the works near Glasgow, they make iron only for the foundry; I have seen the iron which they produce employed for the manufacture of castings, which require great strength and softness, to wit: steam engine cylinders, boilers, gas pipes, mill gearing, &c.

At Birtly, near Newcastle, and at Butterly, near Derby, I have also seen steam engine cylinders, pipes for water pumps, and fastenings for iron bridges.

I should state that the furnace of Torteron, at the Fourchambault works, in the Nievre, produces, since the use of this plan, gray iron, which competes in the market with that from England.

The iron manufactured from hot blast pigs is also of very good quality.

At Codnor Park, near Derby, this iron is employed in the constitution of different parts of the steam engine, of chains for suspension bridges, and of straps and crossbars in iron bridges.

The iron produced at the Tyne works is wrought into sheets, for steam boilers, gasometers, &c.

At Wednesbury, the iron is also of good quality, and serves for purposes which require great strength.

These different examples prove that, by means of the hot blast plan, as well as by the old mode, superior metal can be made for foundry purposes, and which is well adapted for conversion into wrought iron; but it must not be thought that, by means of this plan, the faults which result from the nature of the ore, or coal, can be corrected.

PROBABLE CAUSES OF THE INCREASE OF HEAT, DUE TO THE USE OF HEATED AIR.

I have remarked several times, in the course of this report, that the temperature of the furnaces worked with heated air appears to be higher than in those where combustion is sustained by the use of cold air; all the indications which are usually considered as guides for the working of the furnace unite in proving this assertion.

The scoria does not attach itself above the tuyeres; the color of the fire, in this part of the furnace, is so white as to be injurious to the eyes; the scorias, which are very liquid, flow with facility; the metal being hotter, can be cast directly into the most delicate objects. The quantity of ore in each charge is augmented in a great proportion, whilst the quantity of flux is decreased. This diminution in the proportion of melting is, of itself, the strongest proof of the increased temperature of the furnace; it indicates to us that the earthy matters find sufficient heat to fuse with a small addition of flux.

Probably it is to this excess of temperature that we should attribute the faculty of employing certain coals in a crude state, the transformation of which into coke appeared indispensable, at a less elevation of temperature.

In spite of these certain proofs of the increased temperature by the introduction of hot air into the furnaces, we cannot demonstrate its existence in a positive manner; but it appears to me that, to a certain point, a reason for this phenomenon may be given, by comparing that which passes in the furnace, by the constant introduction of air, to that which takes place by the mixture of two liquors of different temperatures, which we know will produce a mean temperature. The comparisons which I establish appear to me to be just, though the furnaces are in circumstances very different from the liquids having a given temperature, because the heat is reproduced without intermixture, by the combination of carbon and oxygen.

By admitting this cause of the augmentation of heat, it might be supposed to be very slight; on account of the great difference which exists between the temperature of the furnace, and that of the air which sustains the combustion; a difference that we have no accurate means of appreciating. I will show hereafter that this cause is not so feeble as might at first be supposed.

There is, I believe, another much more powerful cause, which it is impossible to estimate; it results from combinations, which could not be produced at the ordinary temperature of the furnace, and which are developed by the augmentation of heat due to the substitution of hot for cold air.

We see constantly, in our laboratories, examples of this phenomenon; substances which are acted upon slowly, and with much difficulty, by acids, at the temperature of the atmosphere, dissolved with facility when the liquor is slightly heated, and the combination formed often becomes itself a powerful source of heat. The operation of the smelting furnaces presents to us, perhaps, similar circumstances. The bitumen, and certain gases, which cannot burn at the temperature of the furnace using cold air, becomes ignited by the feeble augmentation of heat produced by the introduction of heated air; and the little smoke which passes out from the tunnel head when crude coal is consumed, and also the color of the flame, authorizes the belief that the bitumen, the hydrogen gas, &c., are almost wholly consumed.

This supposition naturally answers the objection that may be made, that, even admitting a certain augmentation of temperature by the introduction of heated air, there can be no diminution in the quantity of fuel consumed, because the diminished amount of fuel used in the furnace is compensated for by that required to heat the air.

We have stated that the quantity of air injected into the furnace could, by its great mass, have the power of cooling it to a considerable degree.

This mass of air was raised in the Scotch works, before the adoption of the hot air plan, to 2800 cubic feet per minute, weighing 214¼ pounds. The quantity of air injected in each day, therefore, may be estimated at about 140 tons.

The total amount of coal, mineral, and flux, does not exceed thirty-four tons; the weight of air, therefore, injected into the furnace, is more than four times that of the solid materials used in the same time.

We may conceive, therefore, that so considerable a mass, of which only a fifth part sustains combustion, thrown into the furnace at the mean temperature of the atmosphere, will produce a much greater refrigeration than when raised to the temperature of more than 600 degrees.

A circumstance which still tends to diminish, in a great degree, the refrigerating power of the air, by the use of the new plan, is, that the quantity of air is much less. In the furnaces of Scotland that we have taken for example, the quantity is reduced from 2800 cubic feet, to 2100 per minute, or twenty-five per cent.*

We can calculate the influence of the introduction of air upon the heat developed each instant, by the combustion of carbon; but it appears impossible to appreciate the augmentation which results from new combinations, caused by the combustion of the bitumen and carburetted gases, because we cannot, in the present state of the science, estimate the temperature in the interior of the furnace; the few observations that precede, though not giving any idea of the real influence of the heated air, appear to me, at least, to establish that it is very considerable.

RECAPITULATION.

The details into which I have entered upon the greater part of the works using heated air, have, perhaps, prevented the reader from seizing the principal circumstances of the plan; I deem it, therefore, useful to recapitulate briefly—

I. In all the works, with the exception of one or two, its introduction has resulted in an increase of the products, an economy in the consumption of fuel, and of flux, as well as in the expense of labor, and incidentals.

II. These advantages have followed in the same progressive ratio as the temperature to which the air has been heated.

III. The production of metal has generally increased.

IV. The quantity of combustible matters burnt in the furnaces appears to be nearly the same where the heated air is used, as before with cold air; the daily consumption at the Clyde being eighteen tons of coke, to obtain six tons of metal; now it is eighteen tons of coal, to produce nine tons of metal.

V. The metal produced in the furnaces worked with heated air is generally gray, and fit for the foundry; nevertheless, this plan is employed with advantage in the works of which the pig iron is all, or in part, manufactured into bar iron, (Codnor Park, Tyne, Wednesbury, &c.) It is only necessary, for this purpose, to change the proportions of ore and fuel.

VI. In many works, the combustion requires much less heated, than it did cold, air; at the Clyde, for example, the same blast engine which served with difficulty for three furnaces, now blows four. The economy in motive force is not proportional to the diminished quantity of the blast, because a certain power is required to overcome the friction of the air in the heating apparatus, and the resistance which results from the expansion of the air by the heat. This last inconvenience is remedied by increasing the size of the tuyeres, their diameter having been increased from two and a half to three inches; the increased diameter of the tuyeres is also necessary to diminish the velocity of the current of air, when introduced into the furnace.

VII. When, as at Torteron, a diminution in the quantity of air does not result from increasing the temperature, additional power is required to move the blowing machine.

VIII. The substitution of heated for cold air, in the fusion of iron ore, is marked almost immediately by a change in the nature of the metal, which becomes more carbonized; the charges descend more slowly, but the working is accelerated by augmenting the proportion of ore.

Relative to the Apparatus:

IX. The apparatus formed by joining pipes of large diameter, which receive the air, and of small pipes, in which it is heated, and dilated, appears to me to be preferable to that composed of a series of pipes, of great diameter; requiring a smaller space, being less costly in the construction, and consuming less fuel than the last named; besides, the temperature is not uniform in all parts of this apparatus, and a current is usually formed in the centre, of diminished temperature.

X. To diminish, as much as possible, the velocity of the air submitted to the action of the heat, and to avoid the resistance due to its expansion, it is necessary that the surface of the small pipes should be more extended than that of the large pipe which receives the air from the blowing machine.

XI. The interior capacity of the small tubes ought to be greater than the volume of air injected into the furnace; by this disposition, the air remains a longer time exposed to the action of heat, and acquires a more elevated temperature.

XII. From this last condition, the apparatus placed on the trunnel head appears to be of but little advantage to furnaces using coal; sufficient size cannot be given to it, to enable the air to remain long enough; to remedy this evil, the air is made to pass over another fire placed near the tuyere.

Relative to the Fuel:

XIII. The coals, very rich in coke, which are dry, and resemble anthracite, can be employed in a crude state, in furnaces working even with cold air.

XIV. The coals which contain a large proportion of volatile matters, (30 to 35 per 100,) but which are not very adhesive, and do not change form during combustion, serve, without being carbonized, to work in furnaces using air heated to 300° Cent.

XV. It appears, finally, that fat and bituminous coals, like those of Newcastle, which are fit for the fusion of iron, must, even with the hot blast, be transformed into coke.

* The specific heat of water being represented by 1.0000, that of the atmospheric air is 0.2669, from which it results that a gramme of air at 322° Cent., (612° Fah.) the temperature at which the air is injected into the Clyde furnace, would raise 0.733 gms. of water to 100°, (212° F.) supposing the air reduced to 10°, (60°;) and as the quantity of air introduced each minute is 124,770 gms., the heat which results from this mass is represented by 01,463 gms. of water, raised to 100°.

The charges at the Clyde works are now 34.416 kilogrammes of coal in twenty-four hours, or 23.00 kil. per minute, which, after deducting the waste by ashes, water, and gas, which escapes without being burnt, may be taken at a maximum of 20.30 kil.; the complete combustion of this quantity of coal would raise, in each minute, 1,465 kil. of water, from 0 to 100° centigrade; the increase of temperature which results from the temperature of the air at 322° cent., compared with that produced by the combustion of coal, would be as 92 to 1465, or one-sixteenth. This is the least ratio, the quantity of oxygen being insufficient to transform all the carbon into carbonic acid.